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A Clinical Lecture
ON
FIVE CASES OF
ACUTE DUODENAL PERFORATION.

Delivered at St. Bartholomew's Hospital on June 26th, 1912,

BY D'ARCY POWER, F.R.C.S. ENG.,
SURGEON TO, AND LECTURER ON SURGERY AT, THE HOSPITAL.

GENTLEMEN,—I set the following commentary at an important examination in surgery held recently. The case seemed to me perfectly plain, and I thought that a correct diagnosis could be readily given. Judge of my surprise, therefore, when it appeared on reading the papers that only two or three of the candidates had been able to draw a correct conclusion, and it was clear that several of them disbelieved that acute perforation was possible without previous symptoms of a severe character. And yet these cases are by no means rare. Four cases of acute duodenal perforation have been under my care within the last six weeks, and the symptoms have been so nearly alike in each case that we had no doubt of the condition before the abdomen was explored. The life of each of these patients depended upon the rapidity with which the diagnosis was made and acted upon, so that I make no apology in showing you the patients to-day that you may not fall into error and delay operating when similar cases come under your observation in the future.

ACCOUNT OF CASES.

The original commentary read as follows :—

CASE 1.—A man, aged 24, whilst drinking a glass of beer on an empty stomach, was seized with such severe abdominal pain that he was carried to the house of the nearest medical man. Examination showed him to be so collapsed and pulseless as to appear moribund. He revived after the administration of strychnine hypodermically, and, after resting for an hour, he was sent to the hospital in a cab. On admission he was found to be cold and collapsed; his temperature was 97·6° F.; his pulse 96, of fair volume and force. He was deadly pale, and his aspect was drawn and pinched. He complained of severe abdominal pain. He said that he had always considered himself a healthy man, and that he had just bicycled 50 miles when the pain seized him. Examination of the abdomen showed that there was practically no movement during respiration. It was very rigid everywhere, and was especially tender over the left iliac fossa. The condition of the patient had still further improved an hour and a half later. He was then in less pain, and the abdomen was less rigid on the left than on the right side. He had, however, a markedly tender spot in the right epigastric region as well as in the right iliac fossa; there was also some tenderness in the left iliac fossa. The urine had a specific gravity of 1032; it contained no sediment or mucus; there was no albumin or sugar.

The second case presented so remarkable a resemblance that you will be able to recognise it at once.

CASE 2.—The patient was a man, aged 34. He was admitted under the care of my colleague, Dr. W. P. Herringham, on May 2nd, 1912. There was no previous history of indigestion or of vomiting. He said that he felt quite well, and was standing on a ladder at work when he was seized with a sudden pain in the lower part of his abdomen. The pain was so severe that the police were called to him, and he was brought to the hospital in an ambulance. He felt faint, but did not vomit. He had eaten his lunch of bread and cheese half an hour previously. On arrival in the surgery he did not look ill; his pulse was 96, irregular and bounding; the temperature was 98·6° F. There is no record of his abdominal condition, but he was sent to surgery ward for further observation, and it is said that he slept well. The pain was better next morning, but he was found to be lying on his back with his legs drawn up. When he was examined at 3 P.M. his abdomen was found to be moving badly on respiration, and it was rigid, more especially in the right half. There was marked tenderness in the upper right quadrant, and the liver dulness was absent. The patient seemed to be comfortable, and was not complaining of pain. The pulse was 96, and of good volume. I had no hesitation, however, in saying that he had a perforation in the neighbourhood of the pylorus, and I thought it was more likely to be duodenal than gastric; in either case he needed immediate operation. He was accordingly taken to the operating theatre, and I opened his abdomen exactly 24 hours after the onset of the symptoms.

A perforation of about the size of a pea was found in the first part of the duodenum close to the pylorus. There was a good deal of induration surrounding the ulcer, but the perforation was closed without difficulty. A posterior gastro-enterostomy was then performed, as the patient seemed to be in a good state, and I thought it was desirable to keep the parts at rest. An incision was also made in the right iliac fossa. The fluid which escaped through the incision in the iliac region was turbid, but subsequent examination showed it to be sterile. The peritoneal cavity was drained by a tube introduced through the epigastric wound, and by a second tube in the iliac region. These tubes were removed a week later. The patient made an excellent recovery. He was reading his paper the day after the operation, and he was discharged from the hospital on June 8th.

This case was exceptionally misleading as the patient seemed to have extremely little shock, and if it had not been for the physical signs in his abdomen it would have been easy to leave him until the onset of a general suppurative peritonitis had made his recovery almost hopeless.

CASE 3.—A man, aged 29, was admitted to the hospital on June 5th, 1912. He had always enjoyed good health, and said that he had been able to eat anything until a week before admission, when he first felt pain in the epigastric region after taking food, more especially after eating meat. For the last week, therefore, he had refrained from butcher's meat. He had quite a severe attack of pain in the evening of June 1st. It was on the right side of his abdomen, but it had disappeared on the next day. He was feeling in his usual health on June 5th, and was intending to go to the "Derby." He had a glass of dry ginger ale at 12.50, and a few minutes afterwards, whilst he was at the telephone, he felt "an awful stab in the stomach which knocked me clean over. I had to drop the receiver of the telephone and could not speak." He took some brandy, and afterwards some gin, but both cordials failed to revive him. He was brought to the hospital at 4 o'clock, and when he was first seen by Mr. G. H. Russell he was found to be curled up on his side groaning with pain. He was rather pale, but his pulse was of good volume and 84; his temperature was 99·6° F. He complained of pain all over the abdomen, most marked on the right side. There was no movement of the abdominal walls during respiration, and they felt tense and rigid. There was marked tenderness in the right lumbar region, and there was also a tender spot in the right hypochondriac region.

You will remember that Derby Day this year was our Sports Day at Winchmore Hill, so I did not see him until 7 o'clock. Everything was ready and I operated at once. One or two bubbles of gas escaped on opening the peritoneal cavity. A perforation was quickly found in the first part of the duodenum and extending over the pylorus into the stomach, as was shown by the fact that the fluid exuding from the perforation was viscid with mucus. The opening was closed, a drainage-tube was inserted into the peritoneal cavity, and a second tube was passed through an incision made in the right iliac region. A considerable quantity of slightly turbid fluid escaped from the peritoneal cavity through this second tube. The operation occupied so little time that at 7.25 I was able to make my bow to the Lord Mayor and Sheriffs at the Mansion House on the occasion of the dinner given in aid of the funds of the hospital.

The patient bore the operation well, the drainage-tubes were removed on the second day, and I show him to you, now, fit to go to the convalescent home.

In this case the preceding symptoms of indigestion marked the fact that the ulcer was partly gastric and partly duodenal, and this was verified at the operation. The ulcers limited to the duodenum often—I think usually—give no previous indication of their existence if they are going to perforate.

CASE 4.—This patient was admitted on June 6th, the day after the man whose case I have just told you about. He is aged 34, and says that he had never had a day's illness in his life, except that ten years ago, and again about three

years ago, he had had short attacks of indigestion. From the last of these attacks until the day of his admission to the hospital he felt perfectly well and he was able to eat anything. When he was getting up on the morning of June 6th he felt a dull aching pain in the subcostal region, but it passed off during the day. At 6.30 P.M. he was washing his hands when he was seized with a very severe griping pain in his abdomen. It compelled him to sit doubled up in a chair, and he vomited immediately after some brandy that was given him. He sent at once for a medical man, and at 8.30 he arrived at the hospital.

When first seen the patient was lying on his back with his knees drawn up and evidently in pain. He looked pale, but he was not collapsed. His pulse was 88, of fair volume, and his temperature was 99° F. The abdominal walls did not move during respiration, and they felt absolutely hard. The patient located his pain to the right side of his abdomen, and said that it reached from the region of his gall-bladder to the right iliac fossa. He also had pain in the left iliac fossa.

I opened his abdomen at 10.30 P.M. Gas and fluid escaped as soon as the peritoneum was incised. A small perforation was found in the first part of the abdomen, and was closed in the usual manner. The abdominal cavity was drained both in the region of the perforation and in the right iliac fossa. The fluid in the peritoneal cavity was almost clear and was sterile on culture. The drainage-tubes were removed at the end of 36 hours, and the patient, as you see, has made an uneventful recovery.

CASE 5.—A man, aged 32, was admitted into the hospital at 4 o'clock in the afternoon of Sunday, June 23rd, 1912, complaining of pain in the stomach. He said that whilst he was at work at 3 o'clock that afternoon he was seized with a sudden pain in his stomach. He sat down as the pain was so severe that it doubled him up. He was seen by a medical man and was sent straight to the hospital in the police ambulance with the statement that he was in a state of collapse. The patient said that he had never previously had a severe stomach ache, but about five weeks ago he had felt a dull aching which soon passed off. He thought that his digestion was good, as he never had pain before or after his meals, and he certainly had a good appetite. His last meal had been bread-and-butter, cheese, half a tomato, and tea at 11 A.M., and he had two glasses of beer at 1 o'clock.

Examination showed that the patient was quite cheerful, and that the collapse had wholly passed off. He complained of pain in his epigastrium. His pulse was 84, of good volume, and his temperature was 97° F. The abdomen was quite rigid all along the right half, and to a less degree on the left side. It was not generally tender, but there were definite points of localised pain to the right of the umbilicus, and to a lesser degree in the right iliac region.

I opened his abdomen in the right hypochondrium at 6 P.M. Gas escaped in considerable quantity as soon as the peritoneum was incised, and the liver at its lower edge as it was seen through the wound showed evidence of previous inflammation, for it was adherent to the omentum by a layer of yellowish lymph. A small perforation was found in the duodenum close to the pylorus. It was closed with a double row of Lembert's sutures, and as the patient seemed in good condition I performed a posterior gastro-enterostomy. A large tube was passed into the peritoneal cavity, and the rest of the wound was closed. A second incision was made in the right iliac region, and a large quantity of clear fluid escaped. A tube was introduced, dressings were applied, and the patient was sent back to bed. He made an excellent recovery and was only sick once after the operation.

REMARKS ON DIAGNOSIS.

You will readily perceive the close resemblance in the history and physical signs of these five cases. Each was a man in the prime of life, and this will impress upon you the fact that acute perforation of a duodenal ulcer is much commoner in men than in women—so much commoner, in fact, that, although it occurs, I have never yet seen acute duodenal perforation in a woman.

Each patient, too, believed himself to have been perfectly healthy up to the time of his disaster, and each had started out to his work in the morning without any apprehension of what the day would bring forth. This emphasises the fact that previous indigestion is unusual in duodenal ulceration. It may occur, but it never has the same prominence as in cases of perforated gastric ulcer. Indeed, the absence of a history of dyspepsia with the signs of sudden perforation in an otherwise healthy man inclines one at once towards an exploration of the duodenum.

The onset of the pain is sudden and entirely without any exciting cause. It is very severe, and is associated with so much shock that the patient feels that he is very ill. Even a poor man will take a cab to the nearest hospital, or he will call upon the police to carry him there. The actual degree of shock is felt differently by different persons. In these cases one man seemed actually to be dying; another was admitted into the hospital, where we are always on the look-out for urgent cases, and excited so little interest that it was 24 hours before we were called to see him. If this happens in a large charity you may be certain that in the rush of private practice many cases are overlooked for a much longer time. But, as a rule, the initial symptoms are severe, and most of the cases are seen shortly after the perforation has occurred. It arouses my suspicions as to the cause of the attack when I am told that a previously healthy man has suddenly become collapsed from intense abdominal pain, and that he has been brought in on a stretcher. Pneumonia passes through my mind, and influenza when it is epidemic, but I do not think of appendicitis any more than I do of perforated gastric ulcer.

Examination of the abdomen does not always reveal the rigidity and pain described in text-books if the examination be made directly after the perforation has taken place, and this absence of rigidity is perhaps one of the reasons why the condition is overlooked so frequently. Whilst the shock lasts, and perhaps on account of it, the abdominal muscles continue to move during respiration. The muscles are "on guard," but they are certainly not always or necessarily in the state of tonic contraction which is usually described. But shock is not the only cause, for in a perforated gastric ulcer there is usually marked rigidity of the abdominal muscles even whilst the patient is in a condition of shock. The real cause lies, I believe, in the fact that in a perforated duodenal ulcer the fluid poured out into the peritoneal cavity is neutral or alkaline, whilst in gastric perforation the contents of the stomach are usually acid and much more irritating. Gentle palpation of the abdomen in a case of perforated duodenal ulcer reveals that the upper part of the right rectus abdominis muscle is a little more tense than the corresponding part on the left side, whilst there is a definitely tender spot above the umbilicus and to the right of the middle line. Very often the patient does not complain spontaneously of this spot because his whole abdomen is painful, but when pressure is made upon it he realises at once that it is the point of maximum pain.

The abdominal muscles become more tense as the shock passes off, and a new and very misleading symptom appears, for the patient now begins to complain of pain which he localises to the right iliac fossa. It has happened, therefore, on many occasions in the past, and will again happen frequently in the future, that many cases of acute duodenal perforation are diagnosed as cases of acute appendicitis. You will avoid this mistake—and it is a bad one—if you remember that in acute appendicitis the pain, tenderness, and rigidity are limited to the lower part of the abdomen, though all the symptoms may extend across to the left side, whilst in acute duodenal perforation, although pain and tenderness may be felt in each iliac region, there is a point of maximum pain in the right hypochondrium, and there is at least increased resistance over this area.

FALLACIOUS IMPROVEMENT IN SYMPTOMS.

The next misleading point in a case of acute duodenal perforation is the manner in which the abdominal symptoms subside as the initial shock passes off. This point is well exemplified in the first, second, and fifth cases which I have brought under your notice to-day.

In the first case we happen to have a singularly full account of the improvement. The patient was so ill when he was first seen that he was speechless and almost pulseless. It seemed that he was at the point of death, and although he was in a populous neighbourhood the medical man into whose house he was dragged declined the responsibility of moving him to the nearest hospital, which was only a few hundred yards away. Within an hour, however, he had rallied so well that he was put into a cab, and by the time he reached the hospital and had been seen by the resident medical officer the improvement was so great that he was

inclined to think the history was exaggerated, and was in doubt when he telephoned to me whether it was necessary to do more than watch him. I had seen similar cases, so I did not fall in with his suggestion, but forsook my bed, and we had our reward by finding the perforation.

In the second case the patient was only seen after the initial shock had passed off, and in his case it does not seem to have been especially severe, whilst in the fifth case it had completely disappeared during the short journey from the General Post Office to the hospital. But more or less the improvement is seen in all cases of acute duodenal perforation, and it is dreadfully fallacious. It leads to the necessary operation being postponed, and if this is done abdominal distension heralding a general peritonitis quickly ensues. Forewarned is forearmed, and in no abdominal condition is this more necessary. Decide, therefore, to operate as soon as you have made up your mind that you are dealing with a perforated duodenal ulcer, even though the signs and symptoms do not quite square with what you have read in books. Every half hour you wait still further imperils the life of the patient.

The prognosis in cases of perforated duodenal ulcer has hitherto been much worse than in cases of perforated gastric ulcer, not because the conditions differ materially, but because the diagnosis being a little harder operation has been unduly delayed. You see to-day five cases of perforated duodenal ulcer which have been operated upon in succession and within a few days of each other. Let these cases remind you, first, that the condition is not very rare; and, secondly, that the results of operation are good if the perforation is closed quickly and completely.

OPERATION.

No great difficulty attaches to the operation itself. Make the incision through the right rectus abdominis muscle from the lower border of the costal arch for 3 or 4 inches vertically downwards. Do not cut at once into the abdominal cavity, but pick up the transversalis fascia and the peritoneum, and incise them separately. The escape of a little gas or of a bubble or two will indicate the existence of a perforation. Draw out the stomach and examine the pyloric end. In most cases the perforation will be found in the first part of the duodenum close to the pylorus. It is usually a small and well-circumscribed hole large enough to admit a good-sized probe; the tissues round it are thickened by inflammation, and a clear serous fluid pours out from it in a constant stream. The fluid is the succus entericus coming chiefly from Brunner's glands. It is alkaline and sterile; limpid in many cases, sometimes containing a little mucus. It is rarely blood-stained, but I have seen it black when bismuth has been given beforehand. Close the hole by bringing the duodenal wall boldly together over it with a series of point sutures of No. 1 silk. Do not trouble about any subsequent narrowing of the bowel, but pass the needle through the healthy coats of the bowel well beyond the inflamed area, because if you go close to the perforation the sutures will cut out and time will be wasted. Be careful, too, that the needle is carried through the coats of the bowel until some fibres of the submucous tissue are reached, and this is known by the grating of the needle as its point catches in the tougher fibrous tissue. The sutures will not hold satisfactorily if they are only passed through the serous and muscular coats. Three or four sutures are generally enough to close the perforation and stop the flow of succus entericus. Complete the closure with a second layer of stitches, and take care that a gutter is not formed along which fluid continues to trickle into the peritoneal cavity. This is best avoided by carrying the line of suture well beyond the actual perforation, and if there is a piece of omentum handy it can be attached by one or two point sutures to strengthen the weak spot.

The whole operation, as you will see from the third case which I used in my text, can be completed in a few minutes. If there is not much shock, and the patient seems able to bear it, I prefer to perform a posterior gastro-enterostomy before the abdomen is closed, as was done in the second and fifth cases. It takes only a few minutes longer, and the after-results appear to me to be more satisfactory. A large drainage-tube is inserted if there has been a long interval between the perforation and the operation.

Attention is then turned to the lower part of the abdomen. It may appear to be quite normal, but an incision should always be made in the right iliac region and a large quantity of clear fluid will pour out. It is the succus entericus again which has trickled downwards from the perforated duodenal ulcer. At first it is sterile and causes little inconvenience, but if it is left it suppurates, and a pelvic abscess follows. The presence of this fluid explains the pain in the region of the appendix which is complained of by patients with perforated duodenal ulcer—a pain which has led many patients to an unnecessary appendix operation. The iliac incision need only be sufficiently large to enable a drainage-tube to be inserted, and you must decide at the time whether a single tube is sufficient or whether it will be better to introduce a second tube on the left side. The patient is sent back to bed with three drainage-tubes—one in the epigastric region and one in each iliac region.

The after-treatment consists in removing the tubes as soon as they have answered their purpose, which is to allow of the escape of the fluid that has been poured out from the perforated intestine into the peritoneal cavity. This is usually accomplished within 48 hours, and if they are left longer there is some danger of their becoming channels of infection. The routine of the after-treatment is given in Mr. C. S. Stathers's note on Case 5: "A pint of normal saline solution at a temperature of 105° F. was delivered slowly into the rectum as soon as the patient had been put to bed after the operation. The injection was repeated at intervals of six hours for 30 hours. He was given an ounce of water to drink at 12 midnight, and as he was not sick half an ounce of milk diluted with half an ounce of water was given hourly throughout the night. The wounds were dressed at 11 A.M. the day after the operation. The patient made steady improvement. The tubes were taken out 48 hours after the operation, and he was given 1½ ounces of milk and water hourly. His temperature at this time was 99° F., pulse 72, and respirations 20. On the third day the patient had 3 ounces of milk and water every two hours, and in the course of the day he received 2 pints of milk and 1 pint of water. He was then ordered mutton essence as an alternative to the milk and water."

HIGH BLOOD PRESSURE AND THE COMMONER AFFECTIONS OF ARTERIES.[1]

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RUNNING through almost all modern writings upon high blood pressure and arterio-sclerosis one finds two ideas to which paramount importance has been attached, and these are: (1) certain toxic factors in the etiology of the arterial disease; and (2) increased peripheral resistance as a main factor in the production of high blood pressure.

To both of these a certain tribute is due, but that they should have usurped so much prominence in the etiology of arterio-sclerosis and high blood pressure is, to my mind, a pity, for they have led to treatment being based largely upon measures devised either for the avoidance or elimination of supposed toxins, or for the dilatation of the peripheral vessels by vaso-dilator drugs; both of these lines of prophylaxis and treatment, though in themselves useful, do not, I believe, constitute the fundamental basis of the treatment of arterio-sclerosis. Moreover, from the idea that increased peripheral resistance is the main factor in producing the high blood pressure associated with arterio-sclerosis, there has arisen a very real danger of forgetting that high blood pressure is the net result of several different factors, and not of this one alone. I shall show presently how it is possible to explain most of the phenomena of high blood pressure without invoking the aid of increased peripheral resistance at all, but before doing so I should like here to emphasise the fact that because in a given patient the blood pressure is found to be high, this by no means implies that it is necessarily a good thing for immediate steps to be taken for the reduction of that pressure. There comes a time in some of these cases

[1] A paper read before the Brighton and Sussex Medico-Chirurgical Society at Brighton.

at which, owing to pathological changes in the circulatory system, the best that can be done by nature for the patient, if life and work are to be continued, necessitates a high blood pressure. A high blood pressure is not in itself a good thing, but under certain circumstances it is a necessity, and unless one's views are clear as to why this is so I think that one's treatment of the case will very often be less good than the best.

Definitions of the Commoner Arterial Lesions.

Much confusion has, I think, arisen from the fact that different people use the same terms for different lesions of the arteries, and in order to prevent this from confusing the issue I will define what I understand by the four commoner affections of arteries—namely, (1) atheroma; (2) endarteritis obliterans; (3) senile calcification; and (4) arterio-sclerosis. I have already discussed these in a previous article.[2]

1. *Atheroma* may occur in the same patients as any of the other three affections, particularly in association with arterio-

FIG. 1.

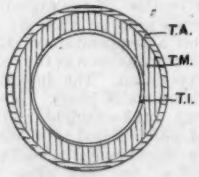

Diagram of cross section of a normal artery. T.A., Tunica adventitia (fibrous). T.M., Tunica media (muscular). T.I., Tunica intima (endothelial).

sclerosis. It is probably on this account that the two are often spoken of as practically identical, some authors using the terms "atheroma" and "arterio-sclerosis" indiscriminately as though they were synonymous. Arterio-sclerosis, as I understand it, however, may occur without atheroma, and atheroma without arterio-sclerosis is common. Atheroma to my mind is essentially a patchy or focal lesion of the tunica intima in the first instance, leading to a focal proliferation of the deep cells of this layer resulting in the formation of a so-called atheromatous "abscess," the surface of which later on becomes denuded away so as to leave an atheromatous "ulcer," in the base of which there is frequently calcification. There may be similar calcification of an atheromatous patch without any breach of the endothelial surface. Beneath the "abscess" or "ulcer" there is secondary small round-celled infiltration of the tunica media, producing a local patch of softening which may or may not bulge out in the form of an aneurysm. The change, however is one mainly of the *tunica intima* in the first instance,

FIG. 2.

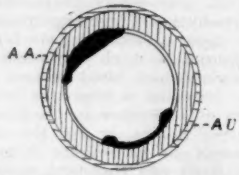

Diagram of atheroma: a local affection of the tunica intima. A.A., Atheromatous "abscess." A.U., Atheromatous "ulcer."

and *focal*. The arteries which are prone to be affected are the aorta, the first few inches of the main branches of the aorta, the coronary arteries, and the cerebral arteries. Under certain conditions, particularly in mitral stenosis of long standing, a similar affection develops in the pulmonary arterioles, but we are dealing at present with the systemic arteries only. Fig. 2 illustrates roughly, in a diagrammatic way, the focal changes in atheroma.

2. *Endarteritis obliterans* is a totally different affection, confined almost entirely to the middle-sized cerebral and spinal arteries, resulting, as a rule, from syphilis and leading, with or without arterial thrombosis, to softening of the parts beyond and thus to hemiplegia, or spastic paraplegia, or some allied evidence of disease of the central nervous system. Doubtless other arteries may be affected in a similar way, but those of the brain and cord are those in which the disease is most often manifested. The lesion consists in a very pronounced concentric proliferation of the cells of the tunica intima, so that the affected vessels have their lumen greatly diminished, and ultimately hardly any blood can get through to the parts beyond. The tunica media and tunica adventitia are affected little, if at all, and

FIG. 3.

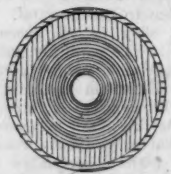

Diagram of endarteritis obliterans: concentric proliferation of tunica intima.

the disease is entirely different from ordinary atheroma. Fig. 3 represents these changes diagrammatically.

3. *Senile calcification* might be held to include the calcareous deposits that have been mentioned above in connexion with atheroma, but the term is better restricted to an entirely different change—namely, the deposition of lime salts concentrically round the middle-sized arteries, especially those at the periphery, such as the radial, in old people, producing that variety of vessel which is sometimes spoken of as the *clay-pipe-stem artery*. (Fig. 4.) There may or may not be atheroma in the same patients, but the change

FIG. 4.

Senile calcification: "Pipe-stem" artery. Calcareous deposits in the tunica media.

is in itself altogether different from atheroma, corresponding rather to the tendency there is in old age to the deposition of calcium salts in all sorts of tissues. I should like to lay stress upon the fact that, as a rule, patients with this kind of artery do not have a very high blood pressure, although from the rigidity of the radial artery clinicians who do not measure it instrumentally often draw the deduction that there must be a high blood pressure because the vessels are so thick and tortuous.

4. *Arterio-sclerosis* is not a calcification and is not an affection of the tunica intima. It consists essentially in

FIG. 5.

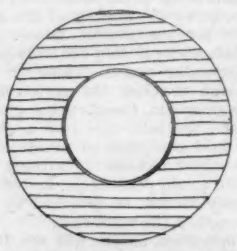

Diagram of arterio-sclerosis. Fibrosis of tunica media; thickening and fusion of tunica media and adventitia. The lumen looks less than that of Figs. 1, 2, or 4, but is in fact the same—an optical illusion.

fibrous degeneration of the tunica media, so that in due course this coat becomes indistinguishable from the already fibrous tunica adventitia; at the same time, the two coats together, as seen in transverse sections, are apt to be much wider than they should be normally, so that the whole vessel is greatly thickened, and yet at the same time widely patent. (Fig. 5.) I should like to draw attention to the

[2] Clinical Journal, July 5th, 1911.

optical illusion produced by these diagrams. Owing to the thick walls of the vessel in Fig. 5 the lumen looks smaller than does that of the vessel in Figs. 1, 2, or 4; yet it is actually the same.

It may be urged that surely the first change described in the text-books as occurring in arterio-sclerosis is not fibrosis of the middle coat, but hypertrophy of this coat, fibrosis being only a secondary change after the original hypertrophy. I shall return to this point later, when I shall also discuss the patency of arterio-sclerotic vessels.

The Need for Instrumental Measurement.

The condition of the radial pulse is so very deceptive as a guide to the systolic blood pressure in the systemic arteries that I would emphasise the need for instrumental measurements in all cases. I am quite certain that one can be led by one's fingers, as they palpate the radial artery, into diagnosing a high blood pressure when it is almost normal, simply because the arterial wall is thick and easily felt; and conversely, one is constantly meeting with cases in which the radial artery feels normal—neither rigid nor tortuous—and the tension of the blood within it does not appear to be high, and yet the systemic blood pressure proves to be not only high, but sometimes very high indeed (250 mm. Hg, 300 mm. Hg, or more, instead of the normal 120 to 150 mm. Hg), when it is measured instrumentally. There are all kinds of machines for the purpose—mercurial, spirituous, anaëroidal, spring, auscultatory. I should be sorry to recommend one more than another, but personally I am in favour of a mercurial sphygmomanometer with the broad rubber Riva-Rocci arm-band, and I think there are certain favourable points about the instrument which is made for me by Messrs. Down Bros., London. With it one can measure the maximum systolic blood pressure in a minute; no practice is required, so easy is the reading; the machine is ready for immediate use at all times without any preliminary fitting together or adjustments; it can be packed in one's trunk when one travels, and yet, although a mercurial manometer, the mercury is practically unspillable owing to an arrangement something like that of the ordinary unspillable glass inkpot.

If one has no sphygmomanometer, a far better guide to the blood pressure than the radial pulse is the aortic second sound. In a case of well-marked and compensated arterio-sclerosis with high blood pressure the cardiac impulse is usually displaced outwards towards the left nipple line or beyond; the first sound at the impulse is of the "hypertrophied ventricle" type—quite characteristic in many cases—sometimes described as "prolonged" or "lumpy," and yet difficult to depict by any such adjective; whilst the aortic second sound in the second right intercostal space close to the sternum is ever so much louder than the first, and generally of the type spoken of as "ringing." Even when there is a very fat chest wall or marked emphysema of the lungs, this accentuation of the second as compared to the first aortic sound can nearly always be made out, and it is an important clinical sign of increased systemic blood pressure. If there is arterio-sclerosis and a high blood pressure, one likes to hear a good fat first sound at the impulse.

Causes of Arterio-sclerosis.

As regards the etiology of arterio-sclerosis, we hear every day about different toxins which lead to it; one is told that from eating too much meat there is an excess of purin bases and other substances allied to gout and uric acid in the system, and that these are responsible for the arterial disease. Some observers blame tobacco, basing their remarks upon the fact that nicotine injected into animals has produced obvious vascular degeneration. Others blame alcohol, especially spirits or brewed liquors rather than wine. Some hold that syphilis is a most important factor in the production of arterio-sclerosis, in the same way that it certainly is of some varieties of atheroma of the aorta and aortic valves and of endarteritis obliterans of the cerebral and spinal arteries. Some believe that microbial toxins, absorbed from such sources as a chronic gleet, pyorrhœa alveolaris, or some other similar focus of chronic sepsis, are the sources of the malady. In cases in which the kidney changes occupy a prominent position some believe that the arterial degeneration is secondary to a renal toxin, rather than that both arterial and renal changes are due to some common cause. Lead poisoning of the insidious and long-continued type is thought to be a factor in some instances, though it can be but a partial factor. In cases in which toxins of the above types are obviously not to be accused, some error of general metabolism is invoked as being the factor in the case, experiments having shown that so-called "pressor" substances can be recovered from the urine, and that these on injection into animals lead to an increase in their blood pressure, though their nature is as yet obscure. Those who regard hard work and muscular strain as an important cause of the change accuse substances, which have been grouped together under the vague term "fatigue products," of producing the mischief.

When none of the above can be found to fit the case, that refuge of the destitute is sought—namely, *intestinal toxæmia*, to which supposititious malady far more is attributed nowadays, I think, than it will ultimately be shown to be responsible for. There may be some obvious intestinal lesion, such as chronic dysentery or ulcerative colitis; but when it comes to accusing a hypothetical intestinal toxæmia of being the cause of a given malady, whether arterio-sclerosis or any other, then I think it is equivalent to saying that the cause is unknown; to attribute it to intestinal toxæmia is to beg the question and to pretend to know that which is really unknown. Arterio-sclerosis shows no particular tendency to prevail amongst patients suffering from chronic dysentery or other gross lesion of the alimentary canal; and in a large proportion of cases intestinal symptoms follow and result from, rather than precede, the arterial degeneration.

The main conclusion that one can draw from the fact that such various and entirely different toxins as those of fatigue and muscular strain, tobacco, lead, alcohol, syphilis, uric acid, purin bases and other meat products, renal toxins, obscure pressor urinary substances, and intestinal toxæmia have all been accused of being the cause of arterio-sclerosis, is that not one of these touches the subject fundamentally, though all may be to some extent a factor in different cases. I think it very likely, indeed, that all of them may in different cases be a factor in its production, but none of them are so essential and fundamental as to be able to produce the disease without some other important factor as well, and it is to a theory as to that other important factor that I now wish to draw attention.

We have probably all of us met with patients who have had syphilis, who smoke habitually all day, and drink perhaps upwards of a bottle of whisky per diem, and yet nevertheless get no arterio-sclerosis. We have all of us also met with patients who, having lived an apparently blameless life, with regular action of the bowels, moderation as regards diet, and without any question of venereal disease, have yet developed extreme arterio-sclerosis. The former is often an active person who spends much time in physical outdoor pursuits; the latter is frequently a hard-working city man who is in his office in town from early morning till late at night, and who does not take any interest in golf or outdoor sports, spends his Sundays resting at home after the mental wear and tear of the week, and yet feels that he is so busy that he cannot take an annual holiday.

The Increased Peripheral Resistance Theory not Entirely Satisfactory.

Before expounding the theory which helps to explain such cases as these I should mention the so-called increased peripheral resistance to which the high blood pressure of these cases is so generally attributed. If one were sure that there was an increased peripheral resistance then this would explain many of the facts about the high blood pressure that so often accompanies fibrotic arterial degeneration. The powers of accommodation of the body are, however, so great that the constriction of the arteries or arterioles which will produce a sufficient increase of peripheral resistance to make the heart create a blood pressure of—say, 300 mm. Hg—would need to be extreme, and ought to be obvious directly one looks for it. What, however, is the actual fact? Post-mortem examination shows that the arteries, besides being thick-walled and standing prominently out of the cut surface of many of the viscera, are nevertheless widely patent. There is usually no indication of any diminution in their lumen. Indeed, at first sight the lumen seems to be increased in the way one would expect if the high blood pressure within the vessels were due to some other factor than increased peripheral resistance.

It has been argued against this that what one sees in the

post-mortem room does not apply to the condition during life. Many observers say that really the healthy vessels that one sees post mortem are all much smaller than they would be if one could see them before rigor mortis has set in, and that the rigidity of the arterio-sclerotic vessels prevents these from retracting and contracting as much as healthy arteries do, so that they appear bigger in lumen than they ought to, though at the same time they may not be capable of such wide dilatation as are normal vessels when the patient is still alive. To my mind, however, there is little proof of this contention; and to judge from the appearances of the vessels when the blood is within them, for instance when they are exposed at operation, arterio-sclerotic arteries are upon the whole not materially smaller than healthy ones.

It has been urged that the pumping of blood along vessels whose lumen is kept the same size by rigidity of the wall is more difficult than the pumping of blood along vessels whose wall can alternately expand and contract, and that this is the source of the increased peripheral resistance; but that there is any extreme difference between the penetrability of vessels that are rigid but widely patent and that of those which whilst capable of wider dilatation can also contract to smaller dimensions seems to me to be not proven; at any rate, the difference is so little obvious that this argument is reduced to one of minor importance, and I have quite failed to persuade myself that there is any marked increased in the peripheral resistance in the arteries in cases of this kind. Others have thought the same, and some of these, loth to give up the increased peripheral resistance theory altogether, have suggested that the obstruction is not in the arteries or arterioles, but in the capillaries.

It has even been suggested by some of those who think that uric acid is responsible for many of the ills of mankind, that the excess of this substance in a colloid form in the blood increases the viscosity of the circulating fluid so much that it can pass through the capillaries only with difficulty and that this is the cause of the high blood pressure. To suppose that the hypothetical increased peripheral resistance which produces the very high blood pressure of arterio-sclerosis is due simply to increased viscosity of the blood in this way appears like a *reductio ad absurdum*; it seems to me to be almost equivalent to saying that there must be an increased peripheral resistance somewhere, only we cannot see where it is. Moreover, we know that there is a great increase in the viscosity of the blood in certain cases of polycythæmia, especially that which is associated with congenital heart disease, where there may be 12,000,000 red corpuscles per c.mm. or more, and yet in these cases, even when they are fully compensated and attain to adult life without symptoms of heart failure, the blood pressure is not unduly high.

It will be gathered that I do not think that either the various toxins to which arterio-sclerosis has been attributed, or the so-called increased peripheral resistance theory of the high blood pressure to which arterio-sclerosis gives rise, are adequate to explain the phenomena of the malady, and that I think there is some more fundamental factor to which arterio-sclerosis and its high blood pressure are due. This I believe to be

The Vaso-motor Factor.

Given a tendency to arterial fibrosis owing to the action of one or other of many different toxins, or to another factor which I will discuss more fully presently, but which I will here call "deficient arterial gymnastics," how can one explain the resultant high blood pressure without invoking the aid solely of increased peripheral resistance? I think one can do so if one thinks for a moment, first, of what the vaso-motor system does for our daily circulation when we are well; and secondly, of what would necessarily happen to our circulation if for any reason the vessels became so fixed that they could not be properly dilated and constricted in accordance with ordinary vaso-motor needs.

Under ordinary circumstances unless one puts any sudden or extreme strain upon the requirements of the circulation—by some such action, for instance, as running quickly for some distance when one has hitherto been sitting down—the heart beats more or less equably from morning till night, and as soon as it has got rid of its blood at each beat it no longer concerns itself with what part of the body that blood is to be taken to by the arteries. The heart supplies the blood required by the circulation at an approximately equable rate, but the distribution of that blood to the different parts that require it is controlled by the vaso-motor system. When, for instance, one has been fasting and eats a meal, then there is dilatation of the vessels in the alimentary canal; first of those of the mouth and salivary glands, then those of the œsophagus and stomach, later those of the intestine, and so on, and so long as digestion is in active progress the increased flow to the splanchnic area is maintained. The circulation within the brain is rather more complicated, for there seem to be no vaso-motor nerves to the cerebral arteries themselves; but by constricting vessels elsewhere in the body, especially those in the splanchnic area, it is possible to shut off blood from the viscera, and thereby bring about the flow of a greater proportion of the total output from the heart to the brain; even here, therefore, the varying blood requirements are controlled by the vaso-motor system. Thus with healthy arteries, healthy heart, and healthy vaso-motor system the distribution of that which is pumped out of the even-acting heart devolves upon its lieutenant, the vaso-motor system. It is by means of the vaso-motor system that the circulatory requirements of the muscles and viscera, with their various activities at different times, are attended to in health.

Let us suppose now that for some reason the vessels in such an individual were converted into fibrous tissue. In man the change develops gradually, along the course of many years, but for the sake of argument let us suppose that it occurred in a given patient suddenly in a great many arteries simultaneously, especially in the most important arteries—namely, those in the splanchnic area. Let us suppose that at the moment this change occurred the man was fasting, and that therefore his stomach, being in need of little blood because it had little work to do, was relatively anæmic. Let us suppose now that he partook of an ordinary meal. For the proper digestion of that meal it would be essential that a greatly increased flow of blood should reach the stomach in order to supply the gastric juice required, and to absorb such constituents as became capable of absorption in the process of gastric digestion. The alternative would be *in-digestion*. It being now impossible by vaso-motor impulses to dilate the gastric vessels and constrict those of other parts so as to bring more blood to the stomach, it would be necessary to pump blood through the gastric vessels with greater force then when fasting in order to make more blood flow through them in a given time. The only agent left by means of which so increased a flow could be brought about in our supposititious patient would be the pump itself.

To make certain that this stomach with its recent meal should receive the minimum quantity of blood required for the proper digestion of that meal the heart would have to pump out more blood in a given time and pump it with greater force. Up to a certain limit this could be done without straining the heart unduly, no doubt, but it is easy to see that this increased demand upon the central pump as the result of its no longer being able to leave to the vaso-motor system the distribution of blood to the various viscera must lead to the heart itself doing more work, so that the patient, if he is to survive, must get a hypertrophied left ventricle. If, however, blood is thus pumped to the stomach in the requisite amount for the digestion of the recent meal, owing to there being no vaso-motor power of constricting the other vessels in this patient's body, blood would be pumped similarly but unnecessarily into all the other arteries at the same time as into those of the stomach. This pumping to waste into peripheral and other vessels in order to maintain the minimum requirements of the most active viscus—the stomach in our supposed example—necessarily means that the pressure at which the fluid goes through these arteries becomes raised.

It will be noted that no increased peripheral resistance is invoked to explain the rise of pressure produced in this way. Moreover, the theory explains better than any other I know why it is that the highest blood pressures occur when the brunt of the arterio-sclerotic change falls on the vessels of the splanchnic area. That this is a fact has attracted attention again and again. There might be considerable sclerosis of limb arteries, and yet if vaso-motor control of the splanchnic vessels remained life would continue even though the fullest demands for an increased blood flow to the legs and arms

were not immediately complied with. In the case of important internal viscera it is different; their demands for increased blood supply for digestive or other metabolic processes must be complied with forthwith if vital functions are to be continued, and it is in supplying the full demands of one or more active viscera in this way that so much blood gets pumped to waste elsewhere and raises the pressure in the peripheral arteries.

The greater the degree to which the vaso-motor power of varying the distributions of the splanchnic and peripheral blood is lost, owing to arterio-sclerosis, the greater must be the rise of the blood pressure in the individual unless the heart fails to be able to maintain the needs of the body and gives way before the blood pressure had risen very high; or else the patient desists from making more than a minimum demand upon the digestive organs by eating or drinking, or upon the muscles by physical exertion, or upon the brain by mental work, and so forth. If the man is to maintain his life and vigour in spite of having permanently fibroid arteries, then it becomes essential that he should be able to maintain his high blood pressure, unless his vessels, short of being fibrosed, are merely stiff, but still capable of being rendered lissom once more by appropriate movements, and so forth—the arterial gymnastics to which we shall refer again presently. It is nearly always easy to bring the blood pressure down in these cases by putting the patient to bed, starving him, or in some other way minimising the demands of the tissues for blood by taking off work from the body or its organs; but I think that unless one holds some such view as that which I have put forward as the vaso-motor view of arterio-sclerosis one gets an entirely erroneous idea of what ought to be done in the matter of treatment. The high blood pressure is not a good thing, but it is the result of nature's method of compensating for the disease of the arteries and permitting the patient to continue with a more or less useful life in spite of his arterio sclerosis.

It is important to distinguish early cases from later ones, of course; for before fibrous tissue takes the place of all the muscle fibres in the tunica media the latter become stiff and inactive though they can still be rendered lissom again (and the need for the high blood pressure proportionately reduced) by methods such as massage, graduated Nauheim exercises, baths, and so forth, which may be classed together under one heading as "arterial gymnastics." If, however, the man's vessels are not merely stiff but permanently fibrosed, and he is to maintain his life and vigour in spite of this without giving up this thing or that and becoming an invalid, then it seems to me to be essential for him to be able to maintain his high blood pressure. Presently it will no longer be possible for him to do so, and then one or other of his viscera will receive too little blood, and by complaining will produce symptoms that we are all familiar with—gastric, renal, intestinal, cerebral, intermittent "claudication"—according to the part which first feels the lack of proper and duly regulated vascular supply; whilst in many patients, rather than let any of the viscera suffer, the heart itself works till it can work no more, and then ordinary symptoms of heart failure, at first slight, later more severe, set in.

To my mind it is not the high blood pressure itself which causes the heart failure, but the need for a high blood pressure which the heart has tried to make good, but which it ultimately fails to maintain. It will be found in these cases that as long as the symptoms are absent or only few the pressure remains high, that when cardiac symptoms begin to appear the pressure begins to fall, and that in a great many cases treatment devoted to increasing the powers of the heart will restore its ability to maintain the circulation.

The "Sameness of Calibre" Theory of Arterio-sclerosis.

It will be asked next what is it that produces the fibrosis of the arteries in these cases. "Surely," some will say, "the fibrosis is due to the strain to which the arteries are subjected on account of the high blood pressure within them." On the contrary, I feel certain that the onset of fibrosis precedes the high blood pressure. I think *atheroma* is often due to continued or intermittent strain as well as to alcohol, syphilis, and age; therefore, it is often associated with *arterio-sclerosis*, but I do not think that the primary factor in the latter is the high blood pressure; I think the horse and cart are just the other way round. It is as yet beyond the power of anyone to say with absolute certainty what is the cause of the fibrosis, however. A large number of different toxins have been accused of producing arterial fibrosis, and any one or more of these may be an important factor in any particular case. I think, however, that it is possible to conceive of the fibrosis of muscles taking place without there being any generalised toxin at work to produce the change. Let me try to explain what I call the "sameness of calibre" theory of arterio-sclerosis.

If we were to bind a rectangular splint firmly on to a patient's arm so as to keep the elbow bent to a right angle, without removing it for three or four years, what would be the result as regards the power of flexion and extension at the elbow at the end of that time? Some fortunate individuals might merely find the muscles very atrophied and the parts stiff, but still capable of recovery under massage, passive movements, and so forth; but most patients so treated would probably have developed so much fibrotic degeneration of the biceps and other muscles that it would no longer be possible to extend the elbow at all, and it might even be impossible to use the affected muscles in any way. When a muscle is kept for long in the same position it has a very pronounced tendency to undergo spontaneous fibrotic degeneration, leading to permanent stiffness and contracture. The fibrosis in this case seems to us natural enough, and we do not immediately hypothecate a toxin to produce it; local chemical changes occur no doubt, but this would not be what is generally understood by the action of a toxin in the sense discussed above.

But what, may I ask, has been the condition of the arteries of thousands of business men of recent years? In many there has been little need for active locomotion by walking or otherwise, owing to the ease of transit by motor-car, train, tram, omnibus, or tube, with the result that the peripheral vessels have hardly varied in calibre from day to day, from week to week, from month to month. Living, without necessarily being luxurious, tends to be good in this class of case, with the result that the stomach, though not necessarily overcrowded, is nevertheless seldom empty, for when it begins to get empty a new meal is put in and the vessels of the splanchnic area are kept constantly employed at about the same calibre all the time. Brain work in the office is hard, and it is often so strenuous all the time that there are insufficient variations between pronounced activity and considerable rest. In many such cases so continuous and hard has been the mental work that the patient year after year has gone without a holiday. Day after day he works with his brain under precisely similar conditions, uses his body and his limbs far too little, keeping his alimentary canal fairly active all the time, and doing the most he can to maintain all his arteries, whether parietal or visceral, at about the same calibre. Surely it is not a long stretch of imagination to compare the muscle coats of the vessels in this case with the biceps muscle of the arm kept in splints.

Whatever factor there may be predisposing to fibrosis in the individual case, this mode of living is bad for the arteries and is, to my mind, a very important factor in the production of arterio-sclerosis; and it explains better than most others the occurrence of the disease even in teetotal, non-smoking vegetarians. One ceases to wonder, on this theory, why the hard-drinking, hard-living, horse-riding country squire or farmer does not, as a rule, suffer from arterio-sclerosis unless he gives up his physical activities. One understands how it is that arterio-sclerosis is so much more a disease of the prosperous middle class than of the lower classes, notwithstanding that drinking, syphilis, and extreme variations in the arterial strain are probably much greater amongst the latter. Whatever the hypothetical toxin that predisposes to the change, relative sameness of arterial calibre over prolonged periods is, to my mind, an important factor in the development of that fibrosis of arteries which is the essential lesion of arterio-sclerosis.

Arterial Gymnastics in Prophylaxis and Treatment.

This introduces what I believe to be a very important point in treatment—namely, that where the muscle coats of the vessels are beginning to stiffen, but are merely stiff and not absolutely fibrous, one can do a very great deal to stave off the progress of the disease by encouraging arterial gymnastics. They are used extensively for this purpose, and

have been for years; but I am not sure that the reason why they do so much good has been clearly understood.

Massage, periodic purgation, periodic fasting, partial or complete; periodic walking exercise, golf at week-ends, boxing, swimming, Turkish baths, various electrical and other treatments, at spas or otherwise, the regulation of water-drinking, dieting, and so forth, all these have as their basis arterial gymnastics either for the peripheral arteries or for those of the viscera. The benefits of graduated Nauheim exercises, with or without the Nauheim baths, may be extraordinarily great even when the patient has a high blood pressure already. Sometimes the blood pressure comes down under this treatment, in which case one may suppose that the arteries were still sufficiently lissom to be made once more supple enough for easy control by the vaso-motor system. Sometimes the treatment causes the blood pressure to go up, in which case the main factor is most probably the beneficial action it has upon the output of the heart. When, however, the vessels have become rigid to an extreme degree, one should be exceedingly cautious in the "training" that one puts them through. One should progress very slowly, starting with very simple exercises.

It does not much matter what the exercises are provided that they serve the purpose of "training" the arteries and the vaso-motor nerves again. The less the arteries are called upon daily to adapt themselves to varying requirements, the stiffer and more out of training they become. Two very simple movements for routine use in the prevention of arterio-sclerosis that can be performed in the morning after the bath are as follows: the first is that of slow but repeated bending forwards with the arms extended until the fingers touch the toes, returning to the erect posture with the arms bent back as far as possible; repeating this say 20 times in succession, not too fast. The patient who can do this without producing any giddiness at all shows evidence of having an active vaso-motor control of his arteries. The other is the imitation of the ordinary dumb-bell exercises whilst the patient at the same time stands upon his toes and hops rhythmically from one foot to the other. I am certain that week-end golf is one of the best antidotes to arterio-sclerosis in these days of strenuous indoor city life. A vigorous daily walk serves the same purpose, but walking is going out of fashion.

It is a remarkable fact that the higher the blood pressure the less is it to be influenced by the use of vaso-dilator drugs such as erythrol tetranitrate, amyl nitrite, sodium nitrite, and liquor trinitrini. This is what one would expect upon the vaso-motor view, for upon this the high blood pressure depends, not upon peripheral vaso-constriction, but upon inability of the vaso-motor system to vary the calibre of the fibrous arterioles. The only really certain way of bringing down the blood pressure rapidly in extreme cases without harming the patient is to put him to bed, starve and purge him. One can diminish the blood pressure in milder cases by diminishing the heart force.

Digitalis Treatment when the Heart Fails.

When signs of heart failure appear the treatment should be such as will enable the heart to do more work. Measurements of the blood pressure are by no means the best guide as to what remedies should be employed. If work can be taken off from the heart for a time, then this is the first thing to do. The patient should have a period of quiet, with simple diet and as much sleep as possible. It will depend entirely upon the severity of the symptoms whether the first part of the period of quiet is to be spent in bed or not. Then, if this is effectual, much can be done by graduated exercises and massage, whether at home or at a place like Nauheim. I am very much in favour of a careful training of the heart by a supervised course of Schott's exercises in what might be called the medium cases of arterio-sclerosis with cardiac symptoms.

When the heart failure signs are more advanced, I am sure that of all the drugs that do most good in these cases digitalis in 15-minin doses three or even four times a day is the best. Not infrequently it will restore to normal activity a man who first comes under observation with enormously œdematous limbs, albuminuria, dyspnœa, and all the well-known signs of failure of the heart. In such cases, although the blood pressure may have been 200 mm. Hg or more when the patient was first seen, as the cardiac symptoms subside this pressure often rises still higher, and when compensation has been restored it is considerably above what it was when the heart was failing. This is a very important point to realise, for it shows how erroneous may be methods of treatment which have for their main object the reduction of the abnormally high pressure. It might be urged against this that cerebral hæmorrhage is to be feared if the pressure is raised in this way, and theoretically the point is a good one. The patient is between the frying-pan and the fire, however; he has to choose between cardiac invalidism on the one hand, and the risk of hæmorrhage on the other. As a matter of fact, one does not find that the digitalis treatment leads to apoplexy.

General Conclusions.

I feel sure that the pressure can only be reduced safely when the muscle of the arterial coats is still muscle, though it may be out of training and stiff. So long as it is muscle it may be rendered lissom again by arterial gymnastics, and so brought back under the control of the vaso-motor system, to the great relief of the heart. When, however, the tunica media of most of the arteries, particularly those of the splanchnic area, is fibrous and no longer muscle, a high blood pressure becomes a necessity if the patient is not to be permanently invalided. If one relies solely upon the "toxic" and the "increased peripheral resistance" theories of arterio-sclerosis and high blood pressure, one may often treat the patient on the wrong lines; the correct lines of treatment being, I feel sure—

1. *Prevention*, by moderation in eating and drinking, a due alternation of brain work with physical exertion daily; not too long sustained a sameness of arterial calibre, whether in the limbs, the splanchnic area, or the brain.

2. *Relief in the earlier stages*, by carefully considered steps that may be classed together under the heading of "arterial gymnastics."

3. Recognition of the fact that when the stiffening stage has passed and fibrosis is already established a high blood pressure is to a greater or less extent a necessity; that it has to be maintained by the heart; that it could be lessened by lessening the work of the heart, as by invaliding the patient or putting him to bed; but that if the patient is to continue life in anything like its full activity the heart must be enabled to maintain a high blood pressure, for which purpose iodides, nitrites, and so forth are relatively useless; cardiac "training" by regulated massage, exercises, being far more important, and the chief drugs to rely on when the heart symptoms are well developed being those which increase the force of heart beat, especially full doses of tincture of digitalis.

Wimpole-street, W.

LONDON DERMATOLOGICAL SOCIETY.—This society successfully held its first dinner at Oddenino's Imperial Restaurant on July 1st. Dr. Morgan Dockrell presided, the guest of the evening being Lord Chesterfield (the Lord Steward). Among those present were Sir Frederick Hodgson, the Rev. Wood Samuel, M.A., Colonel P. J. Freyer, Dr. H. Campbell Thomson, Mr. E. U. Bartholomew, Mr. W. McAdam Eccles, Dr. Helena Hall, Dr. W. Knowsley Sibley (honorary treasurer of the society), and Dr. W. Griffith (honorary secretary). Mr. McAdam Eccles, in proposing the toast of "The Society," said the mere fact that cases of skin trouble came from all parts of the British dominions gave proof that the work carried on in this respect was one of the most important, and everybody felt that there was ample room for a society of this kind, and that its labours would meet with every success. Dr. Morgan Dockrell, in responding, expressed the view that the society had a great future before it. It had been of great use to many members of the medical profession, and its objects were educational, consultative, and social. Lord Chesterfield then presented the Chesterfield medal, and the recipient, Mr. Bartholomew, in returning thanks, said that the great help given by the St. John's Hospital for Diseases of the Skin was conducive to the success of the society, and it was only through that help being extended to him that made him the proud possessor of the Chesterfield medal.

A CASE OF TUBAL PREGNANCY.

DEVELOPMENT TO TERM WITHOUT RUPTURE; LITHOPÆDION (SKELETONISATION); PERFORATION; PERITONITIS; OPERATION; COINCIDENT UTERINE PREGNANCY; SUBSEQUENT DELIVERY OF A LIVING CHILD.

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A WOMAN, aged 33 years, who three years previously had a miscarriage at the fifth month, asked for a skilled opinion about the middle of March, 1910, under the following circumstances. She had not been "unwell" since the previous April, and the time for her confinement being overdue she wanted to know when it would occur. An abdominal tumour, which was thought to be the pregnant uterus, was found reaching two inches above the umbilicus. The areolæ were darkened and the os was patulous. No sounds were heard with the stethoscope and no fœtal movements had been felt. Two or three weeks later the tumour had diminished and only reached to the level of the umbilicus. Nothing further was heard of the patient until August 26th, when she was suddenly seized with acute abdominal symptoms. She then stated that after she had been last seen the abdominal swelling gradually diminished, and at Whitsuntide—viz., May 15th, about—she had a normal period lasting three days. There had, however, been no recurrence of the periods and the succeeding amenorrhœa had now lasted three months. The acute symptoms consisted of abdominal pain, vomiting, distension, and constipation. There was some pyrexia and the tumour could be detected before it became obscured by the distension and rigidity. On August 29th she was seen in consultation by us and was removed on the same evening to the Leeds General Infirmary for operation.

The hospital notes show that there was then a distended and firm abdomen and that no definite tumour could be felt. There was a considerable area of dulness below the umbilicus, extending over the whole of the right half of the lower abdomen and a considerable portion of the left. The muscles during the respiratory movements showed a marked tendency to go "on guard," especially on the right side, but a soreness was felt in the left iliac region. There was a marked fluctuation shock to be obtained over the dull area on the right side. The pulse was 128, the respirations were 40, and the temperature was 100° F. The breasts contained no milk, but the secondary areolæ were marked and very dark. There were no auscultatory signs of pregnancy and no fœtal movements had been felt. On vaginal examination the cervix uteri was felt displaced to the left and backwards and was soft and the os was patulous. To the right and in front was the under surface of a rounded swelling, tense and firmly fixed. It was very tender, but the cervix was not tender.

On the next day (August 30th), when the patient was anæsthetised and ready for operation, a tumour as big as a cocoanut could be felt beneath the umbilicus, and during its palpation bones could be felt crackling and grating against one another. This produced a characteristic noise which could be recognised by the onlookers, and the probability of the existence of a lithopædion was at once raised. When the abdomen was opened a tumour as big as a small cocoanut and of a dull red colour and smooth even surface, except for the deposit of recent inflammatory lymph, was exposed. It was drawn outside and carefully investigated. It proved to be the enormously enlarged proximal portion of the left Fallopian tube. About two inches of the fimbriated extremity projected from one side, and below was its pedicle of attachment to the uterus. The tumour evidently contained bones, and under the pressure of the grasp it became somewhat moulded and a small aperture on its upper surface was discovered owing to the onlookers noticing some yellow material being squeezed out. The uterus was as big as a cricket ball, flaccid, and rather like a half-filled fluctuant bladder. Its condition suggested the possibility of a coexisting uterine pregnancy, and before it was pulled up it was impacted in the pelvis. The pedicle of the tumour was transfixed close to the left cornu of the uterus and tied, and the tumour was removed. The edges of the cut surface were then drawn together by a few sutures after some rather big vessels had been separately tied. The right ovary was not removed. The right tube and ovary were normal.

The general condition of the peritoneal cavity calls for more than a passing note. When it was opened a quantity of turbid yellow serum escaped and the interior looked to be in a terrible mess. The whole abdomen was filled with a grumous yellow fluid in which were semi-solid granular-looking masses of small size. The intestines, omentum, and other viscera were largely covered with yellow lymph in which this grumous material was incorporated. A large quantity of the fluid was mopped up from the pelvis and kidney pouches, but it would have been an impossible task to get the abdomen clean. Fortunately there was every reason to believe that the material was aseptic (a supposition that was subsequently confirmed by a cultivation), so after inserting a large drain with a gauze wick down to the bottom of Douglas's pouch the abdomen was closed.

The patient made an uneventful recovery from the operation, and just before she went home on Oct. 4th the condition of the uterus was noted. It had increased considerably and almost reached as high as the umbilicus. There was then no doubt as to the existence of the pregnancy. On Feb. 4th she was delivered of a living male child, with the help of chloroform and forceps. Recovery was without incident, and she was soon at her household duties again.

The tumour, the external characteristics of which have already been sufficiently described, was oval, almost pyriform in shape, and measured 3½ inches in horizontal diameter,

Reproduction of a photograph of the tumour. The loop indicates the position of the perforation; the Fallopian tube is seen at the right hand lower corner.

4 inches in the vertical, and 3 inches in the antero-posterior (see figure). The dilatation of the uterine half of the tube had taken place upwards towards the abdomen, resulting in an appearance suggestive of a pedunculated fibroid arising from the left side of the fundus. The terminal portion of the tube was continuous with the tumour near its lower part on its outer side, and about the same level as the attachment of the pedicle of the tumour to the uterus on the inner side. The hole from which some of the contents exuded was situated on its upper rounded surface. It was big enough to admit a No. 6 catheter, was round, and had no doubt resulted from ulceration by a sharp edge of bone from within. It presented no signs of rupture.

A window about 1½ inches square was cut in the centre of the anterior wall, which had an average thickness of quite a quarter of an inch. Through this window the contents of the sac were seen to consist of a compressed conglomeration of fœtal bones. There was no intervening

membrane separating them from the wall of the dilated tube. There was no sign of skin or muscle covering the bones, but the exposed, and consequently the superficial, interstices were more or less filled in with yellowish homogeneous soapy material—adipocere.

The parts were not further disturbed, but certain bones could be recognised. There was the spine, a clavicle, and a rib, also a plate suggesting a parietal and evidently a temporal bone with its zygomatic process, and the superior maxilla. The fœtal skeleton no longer existed, but only the various bones which seemed to have been squeezed quite out of their natural relations and to have been packed together in such a way as to occupy the smallest possible space.

The structure of the part of the wall of the sac removed was examined by the assistant pathologist to the infirmary, Miss C. Eglington, M.B., who reported as follows: "On section it is found to be composed of dense fibrous and muscular tissue, the fibres of which are very intermingled. The inner lining of the sac is necrotic. From the presence of this fibrosed muscle the probability is that the sac is composed of dilated Fallopian tube."

It would seem to be a very rare event indeed for an extra-uterine pregnancy to develop to term without rupturing the tube, but Dr. J. Whitridge Williams, the author of the chapter on "Extra-uterine Pregnancy" in Kelly and Noble's Gynæcology and Abdominal Surgery (Vol. II., p. 150), refers to several reported cases. Naturally the question suggests itself—How long can a fœtus remain alive under these conditions? In this instance 11 months elapsed after conception was believed to have occurred before the tumour began to get less. It was after 11 months that the patient sought advice to be put right in her reckoning, and at that time the size of the swelling led to the belief that delivery could not long be delayed. This is the only point there is to suggest, however vaguely, the period of greatest development, and obviously it is not reliable.

One of the most striking features of this interesting case is the association of a tubal pregnancy of unusual character with a uterine pregnancy of a later date. It is true there is nothing very remarkable in such a combination. R. B. Browne[1] has collected 24 cases in which there were extra-uterine and an intra-uterine twin pregnancies, and it is well known that a lithopædion can be carried for years without interfering with the bearing of children. But the development of the intra-uterine pregnancy followed so closely upon the onset of degenerative changes in the tubal fœtus, and the nature of the case was made so clear at an early stage in consequence of the enforced abdominal exploration, that even if there were no other points of special importance the case would be a contribution to the subject of tubal pregnancy of considerable interest. Attention in the main, however, cannot fail to be concentrated upon the tubal condition. It is evident, even from a cursory examination of the specimen, that the pregnancy reached the highest point of its development without rupture of the tube, and if confirmation were needed it is forthcoming in the result of the microscopic examination of the wall of the sac by Miss Eglington.

The last stage of the tubal pregnancy in this case was also unusual. A lithopædion is rarely completely intratubal, but more commonly is contained in a sac which is formed by peritoneal adhesions and false membrane. In this it may lie harmless for years. But where suppuration occurs the pus may open in various directions and the fœtal bones be discharged through the skin, the bowel, the bladder, or the vagina. The peritonitis is local and limiting.

In this case a small perforation resulted evidently from ulceration of a sharp edge of bone and a general peritonitis of a not very virulent type resulted from the flooding of the general peritoneal cavity with escaping adipocere.

We have used the term "lithopædion," but we are perhaps hardly warranted in doing so, for in the microscopic section no evidence of lime salts could be demonstrated. But the case is closely allied to that condition, and it was undesirable to spoil the specimen by a too careful investigation. Our choice of the term, therefore, will not be severely criticised.

[1] Transactions of the American Gynæcological Society, vol. vi., 1881, p. 444.

THE TREATMENT OF CHRONIC ULCER OF THE STOMACH AND DUODENUM BY GASTRO-JEJUNOSTOMY,

WITH A REPORT ON 72 CONSECUTIVE CASES OPERATED ON MORE THAN TWO YEARS AGO.

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IT is now well recognised that the death-rate after gastro-jejunostomy for the treatment of chronic ulcer of the stomach and duodenum is low and the immediate result good; the after-history of these patients is, however, not so well known.

I have tabulated all the cases operated on by me more than two years ago and have arranged them in chronological order. I have included only those in which an open chronic ulcer was present. I have excluded cases of fibrous stricture and those upon whom I performed gastro-jejunostomy in the early days of gastric surgery for "medical" ulcers, &c., in which no demonstrable lesion was found on external examination of the stomach. It was soon discovered that these latter cases were unsuitable for treatment by gastro-jejunostomy, and we have learnt to look for the lesion elsewhere in the abdomen.

During the period under review (1903–1910) I explored 20 patients with symptoms suggestive of gastric ulcer after thorough medical treatment had failed permanently to relieve them. In 12 chronic disease of the appendix was found; this was suggested before operation in 10. These have remained well. Those in whom exploration failed to reveal disease in stomach, duodenum, gall-bladder, or appendix were women; in none were the operative findings a surprise. In addition, a male patient, who had had one attack of "hunger pain" lasting two months, was explored at his own request, and no disease of duodenum, gall-bladder, or appendix was found. In none of these was gastro-jejunostomy performed. No patient was the worse for exploration, all were improved for a time, and several have remained better.

During the same period in three patients irremoveable ulcers were found on the lesser curvature, the nature of which was not clear to naked-eye observation, and no portion was removed for microscopic examination. Gastro-jejunostomy was performed in the hope that the condition was simple. They died 2½, 9, and 16 months later respectively with abdominal tumours undoubtedly malignant. No relief was afforded in the first and second cases; the last case was that of a man aged 40 who had a huge saddle-shaped ulcer in the centre of the lesser curvature binding the stomach down posteriorly. I did an anterior no-loop gastro-jejunostomy on April 7th, 1909. He made a perfect recovery and remained quite well until October, when his symptoms recurred. I saw him at the end of December with a huge nodular mass in the epigastric region with free fluid in the belly. He died 8 months later. These are not included in the table.

In two patients operation was undertaken for pyloric obstruction of 8 months' and of 7 months' duration. Exploration proved both cases to be malignant, but their general condition was so grave that gastro-jejunostomy was performed suitable for use after partial gastrectomy; both patients, however, refused a second operation as they felt so well. The first, a man aged 52, remained, according to his account, perfectly well for 22 months; then, after six weeks' discomfort, he came to see me with an undoubted malignant mass in the epigastric region, and he died two months later. The other, a woman aged 28, remained perfectly well for 20 months, and came to see me 22 months after operation with an undoubted malignant mass in the upper abdomen.

Of the cases tabulated, the replies of those whom I did not see personally are quoted from their letters. The remainder were seen personally.

Of the patients with chronic duodenal ulcer, 26 in number, 21 were men; of those with chronic gastric ulcer, 46 in number, 21 were women. Twenty-four of the patients operated on for chronic duodenal ulcer are living. Of the 2 who died, one (No. 2) lived five years without any recurrence of his previous symptoms and died after a gall-stone operation, the ulcer was found to be healed at

Table of Cases of Duodenal and Gastric Ulcers—1903–1910.

Duodenal Ulcers.

No.	Sex and age.	Symptoms.	Operation. Situation of ulcer.	Result.
1	M., 41	10 years. Attacks of pain after food, relieved by taking food.	23/5/06. Ulcer almost surrounding first part of duodenum.	December, 1911. Quite well.
2	M., 28	8 months. Irregular attacks of pain and vomiting.	23/5/06. First portion of duodenum. Adherent to liver.	Operated on for another cause March, 1909; ulcer healed, anastomosis perfect, gall-bladder healthy. Last seen March, 1910; then quite well. March, 1911: Died after an operation performed in the country for gall-stones. At the necropsy the gastro-enterostomy was "large."
3	M., 32	4 months. Three attacks of hæmatemesis and melæna. Vague abdominal pain.	5/9/06. Posterior surface, second part.	Remained perfectly well until January, 1910, when a malignant ulcer of the anterior wall of the stomach perforated. It was closed at operation, and I last saw the patient in September, 1910, with a large malignant mass in the abdomen; the duodenal ulcer had quite healed.
4	F., 28	5 years. Three attacks of pain after food without vomiting.	1/2/07. Posterior surface, junction of first and second parts.	July, 1911: Perfectly well.
5	M., 50	2 years. Attacks of abdominal pain, particularly at night; relieved by taking food.	21/8/07. Posterior surface, junction of first and second parts.	14/3/12: "Quite well; no return of symptoms."
6	M., 48	7 years. Attacks of pain, relieved by taking food, waking him at night. Hæmatemesis and melæna on two occasions.	30/10/07. Anterior surface, first part.	4/3/12: Quite well.
7	F., 49	3 years. Attacks of pain; no vomiting.	13/11/07. First part.	December, 1911: Quite well.
8	M., 29	2½ years. Attacks of abdominal pain, relieved by taking food. Melæna on several occasions.	21/12/07. First part.	October, 1911: "I have been in good health ever since you operated on me.
9	M., 30	10 years. Attacks of pain after food, relieved by food. No vomiting. One attack of melæna.	4/6/08. First part.	October, 1911: Perfectly well.
10	M., 30	9 months. Attacks of severe abdominal pain and vomiting.	28/8/08. Second part.	December, 1910: Much improved. Still complains of vague pain. Not traced since.
11	M., 48	2 years. Attacks of pain; no relation to food; no vomiting.	11/11/08. Second part.	23/5/11: "I am very well and have never had any return of the old complaint."
12	M., 38	4–5 years Attacks of pain, relieved by food. Occasional vomiting, 3 months.	6/1/09. First part.	20/12/09: "I have not felt any pain since the operation. I can eat, drink, and sleep well; in fact, I never felt better in my life." 1911: Could not trace.
13	F., 32	17 years. Attacks of pain 2 hours after food; not waking her at night; always relieved by taking food; never any vomiting.	14/4/09. First part	4/3/12: "I am feeling very well; the only thing I suffer from is constipation."
14	M., 32	8 years. Attacks of pain 2 hours after food, relieved by taking food, not waking him at night. Melæna on several occasions, first 14 months previously.	19/5/09. Junction of first and second parts, anterior surface.	1/3/12: Quite well.
15	M., 52	6 years. Attacks of pain 2 hours after food, waking him in the early morning; relieved by taking food; symptoms of dilated stomach 2 years.	3/6/09. First and second parts, anterior surface.	1/3/12: "I have not had an ache or pain since the stitches were removed."
16	M., 68	45 years. Attacks of indigestion; pain 2 hours after food, relieved by food. No vomiting, only that of dilated stomach, started 8 months previously.	8/6/09. First part, duodenum.	14/11/11: Quite well.
17	M., 35	2 years. Attacks of pain 2 hours after food; relieved by next meal. Often wakes him at night.	28/7/09. Anterior surface, duodenum.	12/1/12: Quite well.
18	F., 48	9 years. Attacks of pain 1½ hours after food; relieved by taking food. Wakes her at night. Melæna on several occasions.	25/8/09. Anterior and upper surface, first part.	14/11/11: Quite well.
19	M., 46	20 years. Attacks of pain 3–4 hours after food; relieved by taking food. No vomiting. 5 days previously melæna for first time.	6/9/09. Anterior surface, junction of first and second parts.	6/9/11: "Quite well. I feel a different man after 25 years' torture."
20	F., 30	3 years. Pain 3 hours after food, relieved by taking food. No vomiting.	8/10/09. Anterior surface, first part.	28/2/12: No further trouble.
21	M., 23	2½ years. Pain 2 hours after food; relieved by taking food.	13/10/09. First part.	2/3/12: Much better but not quite well.
22	M., 53	30 years. Attacks of pain 2–3 hours after food; relieved by taking food. No vomiting. Much worse past 2 years.	7/11/09. First and second parts.	28/2/12: "Since passing through your hands I have never looked back and, have been practically a new man. The old pain that made life a burden has quite disappeared. I feel quite well."
23	M., 32	3 years. Attacks of pain 2 hours after food. Wakes him in the morning. No vomiting. Relieved by food.	22/12/09. Anterior surface, first part.	4/3/12: Quite well.
24	M., 33	5 years. Attacks of abdominal pain; no relation to food; occasionally relieved by taking food. Attacks of vomiting.	12/1/10. Anterior surface. first part.	20/11/11: Very much better. Still some discomfort after food; never any vomiting.
25	M., 48	2 years. Attacks of pain 3 hours after food; relieved by taking food. Wakes him at night. 2½ months ago dilated stomach; vomiting started.	2/3/10. Anterior wall, first part.	March, 1912: Quite well.
26	M., 42	20 years. Attacks of colicky pain. Melæna a month previously.	23/3/10. Second part.	March, 1912: Quite well.
			Gastric Ulcers.	
27	M., 33	5 years. Attacks of pain 2 hours after food; relieved by vomiting. Hæmatemesis on three occasions.	21/10/03. Posterior surface lesser curvature, close to pylorus.	Quite well 4 months later. Could not be further traced.
28	M., 30	18 months. Pain after food; relieved by vomiting. No hæmatemesis.	7/11/03. Lesser curvature, close to pylorus.	December, 1911: Quite well.
29	M., 42	4½ years. Attacks of pain. Hæmatemesis on two occasions.	22/1/04. Anterior surface, close to pylorus.	December, 1911: Quite well.
30	M., 37	9 years. Attacks of pain after food without vomiting or hæmatemesis.	22/9/04. Lesser curvature, near pylorus.	He developed regurgitant vomiting; lateral anastomosis done 1 year later. December, 1910: Quite well. Cannot trace since.

Table of Cases of Duodenal and Gastric Ulcers—1903–1910.—(Continued.)

Gastric Ulcers (continued).

No.	Sex and age.	Symptoms.	Operation. Situation of ulcer.	Result.
31	M., 48	6 years. Attacks of pain after food accompanied by vomiting.	31/10/04. Saddle-shaped ulcer adherent to pancreas. Anterior no-loop gastro-jejunostomy.	Died from another cause 2 years later. At necropsy ulcer healed.
32	F., 50	13 years. Attacks of pain and vomiting. Hæmatemesis on several occasions. Confined to bed last 2 years.	8/6/05. Anterior surface, lesser curvature, near pylorus.	December, 1911: Quite well.
33	M., 33	7 years. Attacks of pain, vomiting, and hæmatemesis.	4/10/05. Saddle-shaped ulcer. Lesser curvature, adherent to pancreas.	December, 1911: "I am enjoying the best of heath, and never felt better or stronger in my life. I have not had to lose a single day's work through illness since my operation."
34	M., 36	12 months. Pain after food and vomiting. Hæmatemesis on two occasions.	11/10/05. Saddle-shaped ulcer. Lesser curvature.	December, 1911: "Not the slightest indigestion since operation."
35	M., 52	7 years. Attacks of pain after food and vomiting. Hæmatemesis on two occasions.	23/10/05. Posterior surface involving pancreas.	Died following day from hæmatemesis. Post mortem erosion of splenic artery.
36	M., 28	3 years. Attacks of pain after food and vomiting.	7/11/05. Mid-point of lesser curvature.	Started regurgitant vomiting 10 days after operation. Lateral anastomosis done 28/2/06. Perfectly well December, 1911.
37	F., 44	2 years. Pain after food. Vomiting 6 months. Slight hæmatemesis.	8/11/05. Pyloric ulcer. Dilated stomach.	October, 1911: Quite well.
38	M., 54	7 years. Attacks of pain after food with hæmatemesis.	15/11/05. Lesser curvature, posterior surface. Anterior no-loop jejunostomy.	Remained perfectly well until death from another cause 3 years later.
39	M., 25	4 years. Attacks of pain after food followed by vomiting.	21/6/06. Lesser curvature, anterior surface. Excised. Anterior no-loop gastro-jejunostomy.	9/1/12: Quite well.
40	F., 32	6 months. Three attacks of pain and vomiting.	27/6/06. Posterior surface at pylorus.	August, 1911: Quite well.
41	F., 50	10 years. Pain after food. Attack of hæmatemesis.	19/9/06. Lesser curvature.	December, 1911: "I enjoy the best of health and have not had the slightest recurrence of my old trouble."
42	F., 34	12 months. Attacks of pain after food and vomiting. No hæmatemesis.	17/10/06. Posterior surface at pylorus.	Last seen two years after operation, perfectly well. Cannot trace further.
43	F., 33	2 years. Attacks of pain and vomiting. Hæmatemesis on several occasions.	5/12/06. Lesser curvature, posterior surface, close to pylorus.	Quite well 12 months later. Cannot be traced since.
44	F., 28	2 years. Pain after food and vomiting. Three attacks of hæmatemesis.	19/12/06. Lesser curvature, anterior surface, close to pylorus.	December, 1911: Quite well.
45	F., 28	5 years. Attacks of pain after food. Vomiting 2 years. No hæmatemesis.	13/2/07. Posterior surface, close to pylorus and greater curvature.	December, 1911: Quite well.
46	F., 38	10 years. Pain after food followed by vomiting. Many attacks of hæmatemesis.	20/2/07. Large indurated ulcer. Anterior surface of stomach at cardiac end adherent to peritoneum of anterior abdominal wall and to spleen.	Very little relief from operation.
47	F., 34	15 years. Attacks of pain after food and vomiting. Hæmatemesis on three occasions.	27/3/07. Anterior surface close to pylorus.	December, 1911: Quite well.
48	F., 33	4 years. Attacks of pain after food and vomiting. Hæmatemesis 12 months ago.	10/4/07. Saddle-shaped ulcer. Lesser curvature.	December, 1911: Is much better for operation, but has not completely lost pain; has had one or two attacks of pain and vomiting.
49	M., 41	2 years. Vomiting large quantitiese very 2 or 3 days.	10/7/07. Pyloric ulcer.	December, 1911: Quite well.
50	F., 38	10 years. Attacks of pain and vomiting.	11/9/07. Lesser curvature.	Remained quite well for 3 years, then an attack of vomiting after birth of a child. December, 1911: "I have a pain in my left side at times, but am well in other ways. I must be thankful I am as well as I am."
51	F., 38	5 years. Attacks of pain after food and vomiting. Hæmatemesis on each occasion.	30/10/07. Lesser curvature close to pylorus.	December, 1911: Quite well.
52	F., 44	7 years. Attacks of pain and vomiting. Hæmatemesis on two occasions.	6/11/07. Many adhesions at pyloric end of stomach. Small ulcer on anterior surface close to pylorus.	April, 1911: Very great relief from operation, but still has pain at times and has to be careful what she eats.
53	M., 43	5 years. Attacks of pain and vomiting after food.	1/1/08. Middle lesser curvature.	December, 1911: Quite well, and eats everything.
54	F., 56	20 years. Attacks of pain after food. Much worse the last 2 years.	22/1/08. Posterior wall close to lesser curvature. Anterior no-loop gastro-jejunostomy.	December, 1911: Quite well.
55	F., 30	5 years. Attacks of pain after food. Two attacks of hæmatemesis.	15/7/08. Lesser curvature close to pylorus.	4/2/12: "Quite well. It is quite a pleasure to be free from pain after all the years I suffered."
56	M., 41	12 months. Two attacks of pain and vomiting.	15/7/08. Lesser curvature close to pylorus.	December, 1911: Quite well.
57	M., 25	18 months. Pain and vomiting after food. Many attacks of hæmatemesis. On milk diet for a year.	22/7/08. Anterior surface near pylorus.	4/3/12: "My health has given me so little trouble lately that I had nearly forgotten that I had had a gastro-enterostomy done."
58	M., 34	5 years.	13/9/08. Lesser curvature near pylorus.	December, 1911: Quite well.
59	F., 37	20 years Attacks of pain and vomiting after food. No vomiting since an attack of hæmatemesis 12 years ago.	11/11/08. Posterior surface close to middle of lesser curvature.	October, 1911: "The operation is a complete success. I am able to eat anything just like the average person."
60	F., 41	9 months. Pain after food relieved by vomiting; 3 months dilated stomach vomiting.	16/11/08. Lesser curvature close to pylorus. Dilated stomach.	April, 1911: Absolutely well in every way. Has put on 6½ st. since operation.
61	M., 44	2½ years. Three attacks of pain after food. No hæmatemesis. No vomiting.	2/12/08. Lesser curvature. Small saddle-shaped ulcer.	October, 1911: Quite well.
62	M., 42	12 years. Attacks of pain and vomiting after food. Has been washing out his stomach for 3 months.	22/12/08. Greater curvature involving pylorus. Very dilated stomach.	November, 1911: "Since your operation I am as well as possible and have been able to eat anything. I am really better than I was for years before operation."
63	M., 56	2 years. Pain after food. Three attacks of hæmatemesis.	9/1/09. Chronic ulcer, lesser curvature, close to pylorus.	10/9/10 (from medical attendant): "His condition is much better than before operation." Not traceable since that date.
64	F., 45	6 years. Pain one hour after food, vomiting relieving pain. Three attacks of hæmatemesis.	4/8/09. Lesser curvature, cardiac end.	1/3/12: Quite well until December, 1911, when she had a slight attack of pain and vomiting lasting 3 days. Quite well since
65	M., 27	5 years. Attacks of pain half an hour after food, accompanied by vomiting. Several attacks of hæmatemesis.	8/9/09. Lesser curvature, cardiac end.	14/3/12: Quite well.
66	F., 32	2 years. Pain after food followed by vomiting.	20/10/09. Lesser curvature, pyloric end.	20/2/12: Quite well.

Table of Cases of Duodenal and Gastric Ulcer—1908–1910.—(Continued.)

Gastric Ulcers (continued).

No.	Sex and age.	Symptoms.	Operation. Situation of ulcer.	Result.
67	M., 20	Two attacks of pain half an hour after food, accompanied by vomiting. Hæmatemesis on two occasions.	1/12/09. Lesser curvature, pyloric end.	26/2/12: Quite well.
68	M., 50	2 years. Pain after food, relieved by taking food. Three attacks of hæmatemesis in three weeks. No other vomiting.	1/12/09. Middle of lesser curvature.	13/3/12: "I am in very good health, feel no pain whatever, and am able to work as well as before I was taken bad."
69	M., 49	3 years. Attacks of pain half an hour after food. One attack of hæmatemesis. Extremely wasted.	15/12/09. Posterior surface, cardiac end. Anterior gastro-jejunostomy.	24/12/09: Died, broncho-pneumonia. Anastomosis perfect. Called by pathologist "posterior."
70	M., 43	7 months. Pain 2 hours after food, accompanied by vomiting, which relieved pain.	15/12/09. Lesser curvature, anterior surface.	16/3/12: Quite well.
71	F., 42	18 years. Attacks of pain half an hour after food, accompanied by vomiting. Hæmatemesis on several occasions.	8/2/10. Lesser curvature, cardiac end.	1/3/12: Quite well.
72	M., 56	25 years. Attacks of indigestion.	22/3/10. Lesser curvature, invagination.	March, 1912: Quite well.

N.B.—Unless otherwise stated, posterior gastro-jejunostomy was performed.

post-mortem examination; the other (No. 3) remained perfectly well for 3 years and 4 months. He was then suddenly seized with acute abdominal symptoms. I operated upon him on the diagnosis of perforated jejunal ulcer, but found a perforated carcinomatous ulcer on the anterior wall of the stomach. The duodenal ulcer had healed. He died a few months later. Of the 24, 22 are in perfect health. One (No. 10) two years later complained of vague pain, but had lost his severe pain and vomiting. I have not been able to trace him since. The other (No. 24) is very much relieved although he is not "quite well."

The results in the cases of chronic gastric ulcer are almost as good. Of the 46 cases, 2 died in hospital—one (No. 35) on the day following operation from rupture of a small aneurysm of the splenic artery exposed on the floor of the ulcer; the other (No. 69) from broncho-pneumonia nine days after operation. Of the 44 survivors I have been able to trace to date 37; of these 32 are quite well in every way, 4 are much relieved, and only one (No. 46) has experienced little benefit from the operation. In this patient there was a large ulcer situated on the anterior wall of the stomach at its cardiac end with many adhesions to the anterior abdominal wall and spleen. Of those not brought up to date, one remained well and died from another cause three years after operation; another died two years after operation from a cause other than gastric and the ulcer was found healed post mortem; while of the others 1 could be traced four months, 1 a year, 1 over two years, and 1 six years, all quite well at those dates. One (No. 63) was seen 17 months after operation, much better but not "quite well." Of the 32 patients known to be quite well at the present time, 2 are of eight years, 1 over seven, 5 of six and over, 5 of five and over, 5 of four and over, 8 of three and over, and the remainder over two years' duration. Two of the series (Nos. 30 and 36) developed regurgitant vomiting, were treated by entero-anastomosis, and remain in perfect health. In none has jejunal ulceration arisen. Of the immediate death-rate, in only one case (No. 69) can operation be said to have had any influence.

With regard to the immediate results of gastro-jejunostomy in the treatment of chronic ulcer of the stomach and duodenum Up to the end of March, 1912, I operated upon 82 patients with chronic duodenal ulcer; among these were two deaths, both from broncho-pneumonia, one in a male, aged 59, ten days, the other in a male, aged 63, 36 hours after operation. The first was a flabby man weighing 14 st., the second a thin, wasted patient, with a very dilated stomach, who had had symptoms for over 30 years.

Up to March, 1912, I have performed gastro-jejunostomy for chronic ulcer of the stomach on 109 patients. One of these has died in addition to those already mentioned (Nos. 35 and 69), a woman on whom I operated when she was almost *in extremis* for hour-glass stomach, leakage occurred on the twelfth day. At the post-mortem examination there was no attempt at union.

No case of gastro-jejunal ulceration has occurred, but two of jejunal ulcer, both after posterior no-loop gastro-jejunostomy, one six months after operation for chronic duodenal ulcer, the other three months after operation for chronic gastric ulcer. Both were successfully excised. In neither had the appendix been removed at the first operation. One other patient, in addition to the two already mentioned developed regurgitant vomiting, and was successfully treated by lateral anastomosis.

It has been stated that relief is not so certain when the ulcer is situated at a distance from the pylorus and is non-obstructive. This is not in accordance with my experience. Of 23 patients operated upon for ulcer in the pyloric region, 18 are quite well; 4 could not be traced; one 17 months after operation had relief only; the others were quite well at 24, 12, and 4 months. One (No. 52) has had great relief, but is not perfectly well. Of 21 cases of non-obstructive ulcer, 15 patients are quite well. One died three years and one two years later from other causes; they had both entirely lost their gastric symptoms. Three are very much relieved, and only one (No. 46) obtained little relief from the operation.

Although the result of gastro-jejunostomy alone is so good, I am at the present time directly treating the ulcer in addition in most cases. When possible duodenal ulcers are invaginated, and gastric ulcers treated in the same way, or if at all suspicious excised. I have so far excised 15; serial sections have been cut of them all, but no trace of malignant change has been discovered.

The appendix is always removed if the condition of the patient permits, and the gall-bladder is examined. In four of the cases of duodenal ulcer I had to remove gall-stones at the same time; one patient (No. 2) died after this operation had been performed elsewhere five years later. Two of the cases of chronic gastric ulcer were complicated by gall-stones.

All septic teeth are dealt with before operation and all the patients warned to be careful in their diet for the three months following operation, and instructed to take an alkaline powder between meals for the same time.

Operation in unselected cases of gastric and duodenal ulcer can be carried out with a death-rate of less than 3 per cent., and carries with it relief in certainly 96 per cent. of the cases, and the probability of cure in over 80 per cent.

A KING EDWARD MEMORIAL HOSPITAL.—At Haywards Heath, on July 5th, Princess Christian of Schleswig-Holstein opened the King Edward VII. Memorial Eliot Cottage Hospital, which has been erected on Butler's Green-road. The hospital consists of a central block with two projecting wings, faced by verandahs, the roofs of which are supporters by oak pillars. The wards are all on the ground floor, 12 beds being provided, together with the administration rooms. Every provision has been made for light, warmth, and healthful cheerfulness in aspect. The exterior walls are of plum-coloured brick, on a plinth of local stone. The entrance is stone-faced, and over the portals is the inscription: "A.D. 1911. King Edward VII. Memorial Eliot Cottage Hospital." The institution has been erected by public subscription.

THE USE OF CELLULOID SPLINTS IN THE TREATMENT OF CASES OF POLIOMYELITIS.

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THE object of this note is to call attention to the use of celluloid splints in the treatment of cases of poliomyelitis both during the acute and chronic stages of the disease. I first saw these splints in use at the Treloar Cripples' Hospital at Alton, where Mr. H. J. Gauvain had introduced them in the treatment of tuberculous bone and joint disease, and I am indebted to him, not only for the idea, but also for superintending the making of the splints in many cases in which I have used them. The cases of poliomyelitis for which these splints are generally applicable are those in which the legs have been to a greater or lesser degree affected; but they have also been used with good results for cases in which the thoracic and dorsal muscles of the back are involved. The accompanying illustrations show better than any verbal description the form and appearance of the splint. (Figs. 1, 2, and 3.)

FIG. 1.

Boy, aged three, with flaccid paralysis of both legs, standing in walking machine. The illustration shows the appearance of the celluloid splints from an anterior and lateral point of view.

There are three processes involved in the making of the splints: (1) the taking of the cast of the patient's leg; (2) the making of the positive from the cast; and (3) the moulding of the splint on to this positive. It is the first, the taking of the cast of the leg, which is most important, and this is done in the following manner. The leg is oiled, plaster-of-Paris bandages are placed in water, and after being squeezed out are wound round the leg from the foot to the thigh. When the plaster has partially set a cut is made along the anterior surface with a knife, and the cast divided with shears. The leg is removed from the cast, which is then bound round with plaster bandages so as to bring the cut edges of the cast in apposition. It is of the greatest importance to get the leg in a good position whilst the plaster is setting. The foot should be at, or a little less than, a right angle to the leg, and the knee should be just flexed. The second process is to make a positive cast from the negative. This is done in the ordinary manner. The third process is to mould the splint on to this cast by placing layer on layer of gauze, impregnated with a solution of celluloid, until a sufficient thickness has been reached to make the splint rigid.

The making of these splints is not difficult, but requires a certain amount of technical skill. Most of the splints for my patients have been made at the Treloar Cripples' College at Alton from the negatives which have been supplied to them. This form of splint is applicable at any period of the disease, but it should be applied as soon as the acute stage of the disease is over, and before any deformity has arisen. It is obviously impossible either to make or apply the splint in those cases in which during the early stages there is acute pain on the slightest movement, but in cases in which there is no such pain the splint should be made and applied between the second and fourth week after the onset of the disease. The splint has a triple object—first, of preventing deformity; secondly, of keeping the muscles at rest in a position of relaxation; and thirdly, of enabling the child to walk. It is essential that the limbs should be capable of being placed in a normal position before the splint is made, and should any deformity have arisen it is necessary to correct this deformity by the use of hot baths, passive movements, and the application of a temporary splint, or in severe cases by tenotomy, before the celluloid splint is applied.

FIG. 2.

Showing appearance of splints from behind. The splints are strengthened by a bar of steel; the upper level of the splint reaches to the tuber ischii.

There are but few cases of poliomyelitis affecting the legs for which such splints are unsuitable. Those which are most difficult to deal with are those in which there is little or no

power in the psoas and iliacus group of muscles, and those in which there is in addition weakness of the glutei and lumbar muscles. Even these cases will with a little support often walk unexpectedly well in a splint so made that the weight of the body is supported on the tuber ischii. A case in which there is considerable flaccid paralysis of one leg and partial paralysis of the other is a case most suitable for the application of these splints. The boy represented in Fig. 3 was such a case.

The splints are made to embrace the whole leg and extend up to the ramus of the pubes on the inner side of the thigh to the trochanter on the outer side, and to the tuber ischii behind, the knee and ankle joints being fixed. The less extensive cases in which the anterior tibial and gastrocnemius group of muscles are affected need only a splint fixing the ankle joint and terminating below the knee. In cases in which the thoracic muscles are affected, any deformity which may have resulted must first be corrected by extension and rest in bed, before the child is placed into a celluloid jacket.

These splints are so light that they can be used at any age. In infants their object is to prevent deformity rather than to assist the child to walk. I have used them in the case of a child a year old who has complete flaccid paralysis of one leg, in several children during the first decade of life, and also for adult patients. I have also used the splint with success in the case of an elderly woman with a "Charcot" knee-joint. The splint should in the earlier stages of the disease be worn night and day, and no inconvenience or discomfort will arise from such a course if it has been well made and comfortably adjusted. The advantage of wearing the splint constantly is that it tends to prevent deformity, and by keeping the muscles relaxed it hastens recovery. It should be removed every morning and evening for the purpose of washing the patient, and also in order that treatment by massage and resistance movements, electricity, &c., may be carried out; for it is important that all these methods of treatment should be continued. Indiarubber shoes should be provided sufficiently large to go over the foot and splint, so that the patient may walk and have no liability to slip.

In some cases it is possible after four or five months to discard the splint altogether, and even before the lapse of this time it is often safe to leave off the splint at night. In other cases the splint must continue to be worn for many months or years, and as the child grows it will require renewal. After a patient has worn such a splint for two years and if instrumental support is still required, it is probable that a metal splint with a knee-lock will be more convenient, for the celluloid splint fixes the knee in an extended position, and this makes it difficult to sit in comfort.

FIG. 3.

Boy in splints with walking machine.

The advantages of this splint are great. In the first place, it is strong, rigid, and light in weight. In the case of a child aged 3 the splint for the whole leg weighed only *nine ounces*. In the case of a man the splint for the whole leg as high as the groin weighed only *one pound and eleven ounces*. Secondly, the splint can without discomfort be worn day and night, thus abolishing the necessity of separate splints for day and night use; thirdly, many patients can walk in them, whereas they would be quite unable to do so in heavier instruments; and, fourthly, they are cheap as compared to most other forms of splint

The disadvantages are few. First, the fixation of the knee-joint in an extended position is inconvenient, but most children easily adapt themselves to this, and it apparently causes them but little trouble. Secondly, these splints, being made of celluloid, are inflammable. They are not, however, very readily set on fire. A match has to be held in close contact with the surface of the splint for five to ten seconds before anything occurs. The celluloid then begins to burn. It is easily blown out, or if water is near is easily extinguished. There is no "blaze." If the splint is allowed to burn it smoulders away with the production of a good deal of smoke, and this will sometimes burst into flame. Numerous methods have been suggested to avoid this difficulty—varnishing, painting with asbestos paint, covering the splint with leather. None of these are altogether satisfactory; the last is the best method, but it adds both to the expense and the weight. There is in truth but little risk in the use of such splints, for they are usually covered with a woollen stocking, and thus protected from all direct contact with fire. Parents should be told that the splints are made of celluloid, and that care must be exercised; but the risk which is run in their use is trivial and the advantages greatly outweigh all the disadvantages.

Harley-street, W.

PRINCESS ALICE MEMORIAL HOSPITAL, EASTBOURNE.—On July 6th the Duke of Devonshire opened the new wards at the Princess Alice Memorial Hospital, Eastbourne, which have been erected as a town memorial to King Edward. The proceedings were presided over by the Rev. Dr. Crowlen (president), and at the request of the committee the Duke of Devonshire named one of the wards the "Sydney Hudson" ward, after the chairman of the committee, another the "Cavendish" ward, and another the "Crowden" ward. A strong appeal was made for additional subscriptions and donations amounting to at least £1000 each year.

NEOSALVARSAN.

BY JAMES McINTOSH, M.D. ABERD.,
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AND
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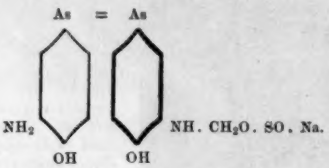
CLINICAL ASSISTANT TO THE SKIN DEPARTMENT.
(*From the Bacteriological Laboratory of the London Hospital*—Dr. WILLIAM BULLOCH; *and the Dermatological Clinic of the London Hospital*—Dr. J. H. SEQUEIRA.)

THROUGH the kindness of Professor Ehrlich we have been able during the past three months to test the properties of the drug called by him "neosalvarsan." As its name implies, this preparation is a derivative of salvarsan, and as an index of the amount of labour which has been expended on it, it may be mentioned that its number is "914" as compared with the original "606."

In the evolution of neosalvarsan the chief object in view has been the achievement of increased solubility and a neutral solution. As is well known, salvarsan is a soluble *acid* salt, to which soda must be added before use. This procedure first brings down a heavy precipitate which, when at its maximum, represents the *neutral suspension;* on the further addition of soda the suspension redissolves as the alkaline solution. In the case of neosalvarsan, however, the powder supplied is entirely neutral and dissolves in water to produce a *neutral solution*, in which form it is ready for use. The use of soda is, therefore, entirely eliminated, together with a source of error or injury to the patient. A convenience is also to be found in the great solubility of neosalvarsan. With the older preparation it was necessary to use glass beads in order to prevent the powder adhering to the sides of the vessel or to dislodge it if this had already occurred. If the powder was dropped upon the surface of the water it was apt to combine into a very tenacious mass which required a thorough agitation to break up. If, however, neosalvarsan is dropped into a vessel of water it *instantly disperses and dissolves.*

The means by which these improvements have been brought about is that frequently used to convert insoluble benzene derivatives into soluble—namely, the introduction of a sulphoxyl radicle. In this instance this was carried out by means of acid sodium formaldehyde-sulphoxylate, $CH_2(OH)O \cdot SO \cdot Na$. Neosalvarsan contains one such group attached to an amido radicle. The graphic formula of neosalvarsan may therefore be written as follows:—



The powder is yellow in colour and less fine than salvarsan, so that on shaking the capsule a definite rattle is detected. It was supplied to us in quantities "equivalent to" stated quantities of salvarsan; that is to say, owing to the addition of the further chemical group, the quantity which represents 0·6 gramme of salvarsan actually weighs more (about 0·9 gramme). Neosalvarsan, like salvarsan, readily oxidises into a highly toxic compound. The process, however, is accompanied by a change in colour from orange yellow to yellow ochre, so that any alteration in composition can at once be detected.

It is probable that the dosage which has been evolved upon the basis of salvarsan will be retained with the new product, and anyone who subdivides the contents of a capsule—for instance, for the treatment of infants—must bear in mind the difference in actual weight.

Neosalvarsan is administered intravenously in a stronger solution than salvarsan, and this again introduces a convenience. Further, bacterium-free distilled *water* and not bacterium-free *saline* solution is used as the solvent. Even if in the case of salvarsan the use of water in place of saline is suggested by some, with neosalvarsan the latter is definitely not recommended because it often entails the formation of precipitates. The solution should be prepared shortly before use—in fact, it is a very simple matter to make it at the bedside. As in the case of salvarsan, the water should be too cold rather than too hot. A temperature of 30° C. is sufficient. We may tabulate the differences in technique as follows:—

TABLE I.—*Showing the Difference in Technique between Salvarsan and Neosalvarsan.*

—	Salvarsan.	Neosalvarsan.
Dose	0·6 gramme.	Equivalent to 0·6 gramme.
Solvent ...	Bacterium-free saline.	Bacterium-free water.
Bulk	300 c.c.	150 c.c.
Method ...	Agitate the powder with beads, and then add the solvent; shake; add sufficient 15 per cent. sodium hydrate solution to neutralise and re-dissolve as an alkaline solution.	Add the powder to the solvent and the injection is ready for use. No soda is used.

In addition to the foregoing improvements, which to some extent are merely matters of convenience, it is also claimed for the new preparation that its therapeutic effect is, perhaps, greater than that of the old, while its toxicity is certainly diminished. These views are advanced by Schreiber, in whose hands has rested the clinical application on 230 patients. It is not claimed—and, indeed, it could hardly be claimed—that the therapeutic effect is very different, but undoubtedly it is no less according to the results which we have ourselves obtained.

With regard to the toxicity we have been unable to demonstrate any striking difference between the two drugs when applied to animals. In the case of rabbits the *dosis maxima bene tolerata* per kilogramme of body weight of neosalvarsan (intravenously) was found to be about 0·18 gramme (equivalent to 0·12 gramme of salvarsan), an amount slightly larger than can be given of salvarsan. With rats, however, neosalvarsan appears to have a slightly higher toxicity than salvarsan, a result no doubt due to the greater absorption after subcutaneous injection. After the application of the *dosis maxima bene tolerata* of neosalvarsan to a rabbit, the animal is unwell for a day or two and then completely recovers. At the inoculation site a hard swelling forms and persists for several days, although it is considerably smaller than was the case with salvarsan. The swelling is an œdematous infiltration of the subcutaneous connective tissue.

TABLE II.—*Showing the Motility of Trypanosomes under Neosalvarsan in Dilutions of 1 in 1000 to 1 in 1,000,000 at Varying Periods of Time.*

Dilution of neosalvarsan.	Immediately.	After 5 minutes.	After 15 minutes.	After 30 minutes.
1 in 1,000	Immobile.	—	—	—
1 ,, 5,000	,,	—	—	—
1 ,, 10,000	,,	—	—	—
1 ,, 20,000	Feeble motility.	Immobile.	—	—
1 ,, 40,000	—	Slow motility; some immobile.	—	—
1 ,, 80,000	—	Very motile.	Immobile.	—
1 ,, 100,000	—	,,	Many immobile.	Immobile.
1 ,, 500,000	—	,,	Slow motility.	Majority immobile.
1 ,, 1,000,000	—	,,	Very motile.	Very motile.
Control.	Very motile.	,,	,,	,,

In order to estimate the direct destructive power of neosalvarsan a series of observations was made on trypanosoma brucei, trypanosomes being perhaps the most delicate

indicators of the toxic effects of such drugs. Although by such methods a direct estimate of the power of neosalvarsan may be arrived at, in the case of salvarsan the result is complicated by the essential alkalinity of the solution, which alone exerts a lethal effect on the test trypanosomes.

In the experiment a cubic centimetre of increasing dilutions of neosalvarsan in saline was placed in a series of test tubes, and to each was added one drop of rat blood containing a large number of trypanosomes. The motility of these organisms was examined from time to time. A control consisted of trypanosomes and saline alone. (Table II.)

It would appear therefore that neosalvarsan is actively parasiticidal in dilutions up to 1 in 500,000 in half an hour. A similar experiment made with salvarsan dissolved with the minimum amount of alkali, an amount which does not injure the parasites in dilutions beyond 1 in 3000, gave the following results:—

TABLE III.—*Showing the Motility of Trypanosomes under Salvarsan in Dilutions of 1 in 1000 to 1 in 100,000 at Varying Periods of Time.*

Dilution of salvarsan.	Immediately.	After 5 minutes.	After 10 minutes.	After 20 minutes.	After 30 minutes.
1 in 1,000	Motile.	Motile.	Immobile.	—	—
1 ,, 5,000	,,	,,	,,	—	—
1 ,, 10,000	—	—	Majority immobile.	Immobile.	—
1 ,, 25,000	—	—	Motile.	Slow motility.	Immobile.
1 ,, 50,000	—	—	Very motile.	Very motile.	Many immobile; others active.
1 ,, 100,000	—	—	,,	,,	Very motile.
Control.	Very motile.	Very motile.	,,	,,	,,

There is, therefore, a considerable difference between the parasiticidal power of these two compounds, neosalvarsan being 5 to 10 times more active than salvarsan. If the above experiments are carried out in guinea-pig's serum diluted 1 in 4 instead of saline solution there is a falling off of about one-fifth of the power in both cases.

If the decrease in toxicity of neosalvarsan to animals is indefinite, when we turn to man we find ourselves in the presence of a palpable advance—an advance much greater than would be expected from the mere absence of soda. We have already expressed the opinion that salvarsan in the doses usually employed is, with rare exceptions, non-toxic. Thus, sometimes a patient will not detect the smallest ill-effect after an injection, while others may experience a transient nausea, or may even vomit. Not uncommonly diarrhœa may occur. These matters are, however, relatively trivial after one injection, and only after repeated applications at short intervals do they attain sufficient magnitude to be undesirable. The largest quantity of salvarsan which we have administered in one course is 1·8 grammes in nine days—that is, three doses of 0·6 gramme intravenously with three-day intervals. Such treatment will produce a slight malaise lasting several days. A similar quantity of neosalvarsan, however, at even shorter intervals may be described as a mere routine. We have been using three injections with one-day intervals in secondary syphilis. The quantity administered has been governed chiefly by the quantity in the capsules supplied to us and has *represented* 0·7, 0·6, and 0·5 gramme, or 0·6, 0·5, and 0·4 gramme of salvarsan, even in women. There is no doubt that such injections of salvarsan would almost invariably be followed by some toxic symptoms, but in the case of neosalvarsan they are usually quite indifferent in this respect. The patient may leave the hospital on the day following the last injection in a perfectly normal or vigorous condition. Patients will state that they feel nothing to recall the fact that anything has been done to them.

The quantities stated above are not large when compared with those administered by Schreiber. As an average course he suggests quantities equivalent to 0·6, 0·8, 0·9, and 1·0 gramme of salvarsan in seven days; that is equivalent to 3·3 grammes of salvarsan, about 5·0 grammes of neosalvarsan. When treating strong adult males he has even administered four doses of 1·5 grammes of neosalvarsan in seven days, a quantity representing no less than 4·0 grammes of salvarsan. We have seen no symptoms follow the injection of 1·5 grammes of neosalvarsan, but in some cases diarrhœa has occurred, but unassociated with malaise. Nausea or vomiting apart from such occurring with the "spirochæte fever" has been absent. We may mention that the fever sometimes occurring several hours after an injection of salvarsan, especially in tertiary cases, is still observable after the use of neosalvarsan. This is a matter of some interest, since it supports our view that such fever is not an expression of the toxicity of the drug, but perhaps rather a syphilitic anaphylactic phenomenon comparable to the fever following the injection of old tuberculin.

Whether the new preparation can give rise to fatal cases of "encephalitis" or acute yellow atrophy of the liver is, of course, unknown.

As regards intramuscular injections, we have always considered these to be a valuable adjunct to the intravenous, since they probably continue a therapeutic effect for a longer time than the latter. Whether a "depôt" is obtainable is, however, doubtful, owing to the rapid incapsulation of the injected matter. The uncertainty in dosage thus produced, as also the danger of necrosis, had led us to discontinue intramuscular injections of salvarsan. We have, however, tried neosalvarsan intramuscularly, as also has Schreiber, and, like him, we have latterly discontinued its use thus. The injections were applied as concentrated and more dilute watery solutions and also as emulsions or mixtures with lanoline. We could detect no advantage of the latter over simple watery solutions. In general the intramuscular injections were less painful than salvarsan injections. The pain was nevertheless severe, though by next day largely diminished or absent. One of us found that a solution of 0·1 gramme of neosalvarsan subcutaneously was practically painless. The injection, however, led to necrosis of the subcutaneous tissues which was prevented from involving the skin by aspiration. The induration shows little tendency to diminish in size after three months. It is necessary, therefore, to inject only into the muscular tissues, and if this is accurately performed the induration will be found to be much less than in the case of salvarsan; and, further, absorption of the injected mass will be much more rapid. This being the case, the advantage of intramuscular over intravenous injections will be considerably discounted.

In general, therefore, the importance of neosalvarsan is the diminished toxicity to man, enabling a further step to be taken towards the more frequent attainment of a *therapia magna*—in other words, allowing a more intensive treatment of early syphilis. Generally, in primary syphilis two initial doses may be given, followed by a third at an interval of four weeks. In secondary syphilis three injections will be sufficient at first, with a fourth eight weeks later; while in tertiary cases the treatment should be continued every two to three months after the initial course until a negative Wassermann reaction has been obtained.

So far as we have observed in the short time of trial the effect of neosalvarsan upon the Wassermann reaction is similar to that of salvarsan—that is to say, in a case of secondary syphilis a negative reaction may be obtained in from eight to ten weeks after such a course of treatment as that outlined above. We, of course, refer only to the Wassermann reaction as carried out in this laboratory.

THE TROPICAL DISEASES BUREAU.—On July 1st the title of the Sleeping Sickness Bureau was changed to the Tropical Diseases Bureau, and the offices were moved to the Imperial Institute. All communications and exchanges of publications intended for the bureau should now, therefore, be addressed to the Director, Tropical Diseases Bureau, Imperial Institute, London, S.W. In October next the Sleeping Sickness and Kala-Azar Bulletins will give place to the Tropical Diseases Bulletin, in which will be published summaries of all the current literature of tropical and subtropical diseases. A quarterly Tropical Veterinary Bulletin also will be issued by the bureau.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

PREGNANCY AND AN OVARIAN CYST CONTAINING 32 PINTS OF FLUID.

BY STANLEY BOTT, M.R.C.S. ENG., L.R.C.P. LOND.,
LATE RESIDENT OBSTETRIC ASSISTANT, WESTMINSTER HOSPITAL.

THE patient, aged 30 years, was admitted to the Westminster Hospital on Nov. 2nd, 1911, with the following history. She had become pregnant at the end of February, 1911, and nothing abnormal had been noticed until August, when she considered herself greater in circumference than on the two previous occasions of pregnancy; the enlargement had taken place rapidly. During the following months the patient had complained of pain in the back and abdomen and was inconvenienced by the enormous abdominal enlargement, but she had continued to do her household work until Oct. 28th, when she was attended by Mr. Gilbert E. Cope and was delivered of a child weighing 5½ lb. Mr. Cope had had some difficulty in delivering the placenta, and finding that the abdominal enlargement had scarcely diminished he had called in consultation, on Nov. 2nd, Dr. G. Drummond Robinson. After examination Dr. Robinson considered that it was an ovarian cyst, and advised removal to the Westminster Hospital.

On admission the patient's respiration was greatly embarrassed, the bases of both lungs were œdematous, and the whole of the body surface showed signs of œdema. The circumference round the waist measured 59 inches. Preparations were made for an immediate operation for removal of the cyst, but as the anæsthetist considered the administration of a general anæsthetic very dangerous Dr. Robinson plunged into the cyst through the abdominal wall a bladder trocar, by this means drawing off 29 pints of fluid consisting of the usual colloid material. On the following day, the patient's condition being greatly improved, a general anæsthetic was administered, and by a mesial abdominal incision Dr. Robinson removed the cyst of the right ovary; it was adherent to the diaphragm, abdominal wall, and pelvis, thus obliterating the whole of the abdominal cavity; an additional three pints of fluid were found. A few days after the operation the patient developed phlegmasia of the left leg. On the eighteenth day about four pints of thin fluid of a sero-purulent nature burst forth from the lower end of the abdominal incision, and on pressure of the left thigh more fluid was obtained; this discharge continued for some days.

The patient made good progress and is now discharged from the hospital.

I am indebted to Dr. Robinson for permission to publish this case.

London, N.W.

NOTE ON A CASE OF PULMONARY THROMBOSIS.

BY J. MOORE BENNETT, M.D. DURH.

THE patient, a woman, aged 37 years, had been married for five years, and this was her fourth confinement. She had three children living, all of whom had been born before my arrival on the respective occasions. To this fourth labour I was called to about 8 A.M., and I saw the patient, who lived about three miles away, at 8.40 A.M. I found her walking about and restless, the pains being irregular and weak. On examining per vaginam I found the os uteri fully dilated, the membranes intact, and the head in the first position. The pulse was weak and soft, but regular. I persuaded the patient to lie down. In about five minutes after the vaginal examination the waters broke and the head was born, then the shoulders. Suddenly the patient's legs were drawn up and she tried to grasp her chest and throat with her hands. There was slight frothing at the mouth, the face and skin at the same time being deeply cyanosed, and respiration ceased at once. I placed my hand over the patient's heart and could only faintly feel two or three beats. Hot cloths were at once applied over the cardiac region and an injection of strychnine was given, but the patient was practically dead at once and before the child was completely born; in fact, it seemed like an epileptic fit occurring during the second stage of labour, and exactly coincided with Playfair's able description in his book on midwifery (Vol. II., pp. 365–66).

The pulmonary artery is especially liable to thrombosis. Its relationship to the venous circulation explains this, as Dr. J. Humphrey has pointed out. Before entering the lungs it breaks up at once into a number of branches, which radiate from it at different angles to the various parts of the lungs. Consequently a large extent of surface is presented to the blood, and there are numerous angular projections into the currents, both of which conditions are calculated to induce spontaneous coagulation by retarding the blood current. Then, again, certain conditions of the blood seem to favour coagulation—first, the presence of micro-organisms and their products; secondly, an increase in the platelets. The micro-organisms may assist thrombosis by producing a clumping of the red corpuscles. An increase of the platelets has often been observed in anæmia. It is said that in the later months of pregnancy the tendency to coagulation is increased. Possibly this is due to the excess of calcium salts in the blood, as has been pointed out by Blair Bell (and mentioned as one of the causes of commencing labour). The blood contains an excess of fibrin which largely increases in the later months of utero-gestation until, as has been pointed out by Andral and Gavarrel, it not unfrequently contains a third more than the average amount in the non-pregnant state.

The patient in the present case was a thin, anæmic woman, and had not been professionally attended for some time.

Woodley, Notts.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

Resumed Debate on Syphilis.

THE fourth and concluding meeting of this debate was held on July 8th, under the presidency of Sir HENRY MORRIS.

Dr. H. R. DEAN said that according to Mendel only a small proportion of idiots showed the classical signs of congenital syphilis. But the view of several writers was that congenital syphilis was an important cause of idiocy, and though the child might not show the usual signs of the disease, a definite history of it was traceable to the parents. It must be remembered that a positive Wassermann had been obtained in some cases of frambœsia, trypanosomiasis, and certain cases of leprosy, as well as malaria. But as those diseases were rare in this country a positive Wassermann in any person might be safely taken to mean syphilis. It might be the only sign, for the person might appear to be in perfect health. Among 330 cases of idiocy at an institution on the continent 15 per cent. gave a positive Wassermann. The later the age at which the test was done the smaller was the percentage of positive results, and there was a marked diminution after the sixteenth year of life. Subjects of general paralysis of the insane were generally those in whom the early symptoms of syphilis had been mild or even unnoticed by the patient. Half the cases collected by Mott showed no signs of syphilis, but they had syphilitic parents. Congenital syphilis must be a very important cause of mental deficiency, and it would be well if every member of families containing one or more idiots could be examined by the Wassermann test. He would place cases in which syphilis affected the central nervous system into three groups: 1. Infants born with marked evidence of syphilis. In these the brain and other organs showed marked change, and the subjects usually died within a short time of birth. 2. Children apparently healthy at birth, but developed mental defect at or before puberty. They included juvenile general paralytics. 3. Cases of mental deficiency and idiocy, in many of which the Wassermann reaction constituted the sole evidence of the

syphilitic origin. It would be well if the Wassermann test could be applied to all women in lying-in hospitals.

Dr. J. H. DAUBER opened by expressing his dissent from Mr. Hutchinson's view that Shakespeare was a syphilitic. That great man could not be held to have suffered from all the diseases and vices which he portrayed. He thought the time had arrived for asking the Legislature to assist the campaign of the profession against syphilis, by placing infected persons under some sort of direction or restraint, so as to check the spread of the disease. The profession made a mistake by devoting its energies to treating individual cases, instead of adopting a strong line, having prevention and the stamping out of the disease as its objective. The latter method had produced brilliant results in the case of malaria, and in this country hydrophobia had been practically obliterated, though that could not have been done without the help of the Legislature. Yet syphilitic men and women were allowed to go about disseminating the disease unchecked. Germany had taken a strong line in the matter, and persons there must not marry within ten years of their acquiring the disease. If the general mass of the people were to realise the possible bad effects of the disease, it would soon be banished. Many prostitutes, in order to earn a living, went out on to the streets, though they knew themselves to be diseased; and it would be better and more economical for the State to house and cure these prostitutes than allow them to sow their disease broadcast.

Dr. J. B. CANDLER devoted his attention to giving results of the application of the Wassermann test to both the serum and the cerebro-spinal fluid in cases of general paralysis. 109 cases of this disease were examined and the test applied to the cerebro-spinal fluid was positive in all; and in 107 from the serum test. In cases of suspected general paralysis in which the reaction was negative, it was advisable to repeat the test subsequently. He gave the technique of the test, and warned Fellows against some useless modifications of the technique being employed in this country.

Dr. BARRETT (Victoria, Australia) said he was one of the advisers of the Government of Victoria, and was concerned in the carrying out of some of the proposals which were made in this discussion, and which had been recorded in the *Australian Medical Gazette* and the *Australian Medical Journal*. After a number of careful observations had been made a deputation of clergy waited on the Government of the day and urged that something should be done in the matter. As an experiment, from May 1st, 1910, to May 1st, 1911, syphilis was made compulsorily notifiable. Names were not furnished, but the particulars included the age, sex, and clinical condition, and some blood from each case was sent to the university, where Dr. Hillier conducted the Wassermann examination, and so the clinical evidence was correlated with that result. An astonishingly large proportion of apparently ordinary non-syphilitic patients yielded a positive Wassermann. It was so in 15 per cent. of patients who bore no signs of syphilis. The ladies of Melbourne and the lay press agreed to speak of the subject openly and to coöperate in an effort to make its dangers more generally known, though they each did it reluctantly and only under a strong sense of duty. He controverted the idea that prostitution was due to poverty by the fact that there was practically no poverty in Victoria, yet organised prostitution was rife. It must be due to a peculiar aberration of mind. The ladies insisted that any measure of segregation or otherwise must apply to both sexes equally. It had been said that half the operative work at the Women's Hospital was due to gonorrhœa; and if syphilis and gonorrhœa could be obliterated doctors would have, medically, almost a new world. If it should be decided to ask the British Government to receive a deputation, he offered to accompany it and speak from the experience he had had in the Antipodes.

Dr. BERNSTEIN spoke from his experiences as a pathologist and drew attention to the frequency with which vague pains in the head and neurasthenic symptoms were traceable to antecedent syphilis, and in very many cases the parents were found to have had the same disease. Salvarsan had been given to mothers on account of syphilitic babies in utero, and with marked benefit, and when given to mothers who had been repeatedly miscarrying the result was the birth of a sound baby next time. Knowledge concerning syphilis was spreading among the masses, and one more frequently had men who wanted to get married coming to ask if they might safely do so. There were many cases which one felt a strong desire to notify on account of the great opportunities for spreading the disease; he referred to chefs at hotels and cooks at restaurants. It was too expensive for the family doctor to do a Wassermann for every case, and he advocated the establishment of central laboratories, not only for syphilis, but also for glanders, diphtheria, and tubercle.

Dr. S. A. POWELL (Bombay) spoke of the ravages of syphilis in India, particularly in regard to its effects on the arteries, so that deaths from ruptured aneurysms were much more frequent than those from valvular heart disease. He drew attention to the dangers of syphilophobia; he had made post-mortem examinations on 11 cases whose suicide was due to this cause. This was largely contributed to by a certain class of erotic literature. When salvarsan was allowed to cool before being injected it produced rigors, but when it was used at 108° F. those seemed to be absent.

The PRESIDENT, in closing the debate, gave a careful review of the points made by the various speakers, and supported Dr. Dauber's protest against the idea that Shakespeare, or whoever was the author of the plays known as his, was the subject of syphilis. What proof was there that syphilis did not exist in this country prior to the time of Christopher Columbus? And did it exist in America before that continent was known to have communicated with the outside world? Dr. Ashmead, in America, said that the Japanese race had been saturated with syphilis for 1300 years, and the Chinese since 1024 B.C., so that those races had probably acquired a large resistance to the germ. It was very probably rampant among the Indians before Columbus arrived, but there was not much deformity, as it was skilfully treated. With regard to a more extensive teaching about venereal disease in our medical schools, there must be further and proper courses of instruction, but the acquisition of a digital chancre by the medical man did not necessarily imply ignorance of the disease on his part, because some practising gynæcologists had acquired the disease in the same way. The question of the segregation and registration of syphilitics would soon come under the attention of a committee of the Royal Society of Medicine after conference with the Eugenics Education Society.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Cases.—Food Requirements of Children.—Vagus Stimulation and Paresis in Treatment of Cardiac Irregularities.

THE concluding meeting of the session was held on July 3rd, Dr. JAMES RITCHIE being in the chair.

Dr. G. LOVELL GULLAND showed: 1. A marked case of Lymphadenoma in a man. The patient had contracted syphilis three years ago and underwent treatment for three months. A year later he began to be troubled with a persistent cough, probably an indication that the mediastinal glands had become affected and were exerting pressure on the trachea. Seven months ago he first noticed a small lump low down on the left side of his neck and this steadily grew in size. Two months later swellings began to appear on the right side of the neck. Very shortly afterwards similar swellings appeared in both axillæ, and four months ago these all took on a very rapid growth and now formed large prominent masses. On percussion there were evidences of large intra-thoracic growths also. He now suffered from dyspnœa and spasm. The inguinal glands had also commenced to enlarge. He was admitted to the Royal Infirmary on April 27th, when a gland was excised and proved to be definitely lymphadenomatous. The red blood corpuscles were 3,700,000; hæmoglobin, 70 per cent.; white corpuscles, 32,200; polymorphs, 86; lymphocytes, 3; and mononuclears, 11. Liquor arsenicalis was administered for ten days but without benefit; 0·6 grm. salvarsan was given on May 8th, and the glands became smaller with a lower leucocyte count. In a fortnight, however, his condition was as bad as before. A second dose of 0·6 grm. salvarsan produced marked reaction and symptoms of arsenical poisoning; the glands began to grow rapidly

and the dyspnœa became much more marked. He had now again improved. 2. A case of Stokes-Adams Syndrome with apparently permanent heart-block. The patient was a man aged 76; he had been in the army for 11 years and then had worked as an artisan. Six years ago he had his first seizure with sudden dizziness while walking along the street; this lasted a quarter of an hour with no unconsciousness. He had no more fits until the end of May of this year when he again became dizzy and lost consciousness. On regaining consciousness he found himself on the floor with his right arm against a gas-stove and badly burnt. His pulse-rate averaged 36, with evidence of complete heart-block. While the patient was in bed the heart sounds were so feeble as barely to be heard.

Dr. D. CHALMERS WATSON communicated a paper entitled "Remarks on the Food Requirements of Children," which is summarised as follows. Having been asked some time ago to join a subcommittee of the Edinburgh School Board to advise as to the board's feeding scheme, Dr. Watson was led to look into our present knowledge of the food requirements of children. Special interest and importance now attach to the subject of cheap and nutritious foods in view of the Provision of Meals Act, 1906, which empowers educational authorities to supply school children with meals. The question of supplying diets which are both nourishing and cheap is an important one. To a man and his wife with three or four children and an income of £1 a week or less the question of how best to expend the sum required for the necessary foodstuffs is, or ought to be, an important one. On looking into the subject and consulting the leading text-books on diseases of children Dr. Watson could find little or no information as to the amount of the different food ingredients required by children of different ages. In text-books on physiology it is laid down that a child of 5 requires 0·4 of the diet of a man at moderate work, a child of 6 = 0·5, and a child of 10 to 12 = 0·6 of the diet of a man at moderate work. It seems fair to conclude, therefore, that in their practice pædiatric physicians either adopt the standard laid down by physiologists or they adopt no standard, but rely on the appetite of the child as a safe and reliable guide to its food requirements. As this position is not altogether satisfactory, and as it gives no basis for the feeding of large numbers of children, Dr. Watson made investigations along the following lines: 1. An analysis of the proteins, fats, and carbohydrates in the daily dietary of eight children, about 5 years of age, in good social circumstances, all the children of medical men. 2. The provision of highly nutritious, palatable, one-course meals at very moderate cost for the large number of children (over 2000) fed by the board. Dr. Watson pointed out that no claim was made as to the data obtained being exact scientific data. They were inexact because they were incomplete. But they were sufficiently exact to give material for reflection, to raise doubt as to the soundness of current theory, and they had enabled the author to formulate a scheme of feeding for use by the board which appeared to meet the requirements alike of the children, the school authorities, and the ratepayers. Special attention was directed to the food requirements in proteins, these being the most important food elements both from the physiological and pathological point of view. For purposes of the present paper the author accepted as correct the commonly accepted standard of food requirements associated with the names of Atwater and Voit. This furnished—

Protein.		Fat.		Carbohydrates.		Caloric value.
120 grm.	.....	65 grm.	.....	500 grm.	.....	3150
(4·2 oz.)	.....	(2·2 oz.)	.....	(17·6 oz.)		

On this basis the diet of a child aged 5 should comprise:—

Protein.		Fat.		Carbohydrates.		Caloric value.
48 grm.	.....	30 grm.	.....	200 grm.	.....	1270

In the series of children investigated by the author the average daily dietary worked out as follows:—

Protein.		Fat.		Carbohydrates.		Caloric value.
72 grm.	.....	69 grm.	.....	198 grm.	.....	1750

Dr. Watson concluded that the 72 grammes of protein more nearly represented the physiological dietary for an average child of 5 or 6 years of age than the 48 grammes. Stress was laid on: 1. The special importance of the source of protein, the casein of milk being, in general, of much greater value than that of meat. 2. On the different amounts of protein that are called for in the case of children of gouty and tuberculous tendency—in the former the amount of protein, and especially in the form of meat foods, being definitely restricted during the whole growing period. In the latter the amount of protein in the form of meat and meat foods should be considerably higher than in the case of the average child, the excess being maintained until the constitution of the child had been profoundly altered by the long-continued use of the correct dietetic *régime*. The explanation for this was, in the author's view, to be largely found in the special effects of an extra protein diet on the thyroid gland, as brought out by the results of his experimental investigations on the subject. 3. The third point that was emphasised was the necessity of pure unadulterated food, special attention being directed to the use of bleached flour, a large amount of bread now being made not from the natural product of the wheat but from flour which has been subjected to treatment with nitrous oxide fumes. 4. Stress was laid on the importance of giving a sufficiency of "hard" food requiring mastication, giving meats in a form necessitating chewing, bread in baked form for similar reason, at the same time restricting the sugar and sweets in the dietary. Slides were shown illustrating highly nutritious one-course dinners supplied by the Edinburgh School Board, which brought out the relative nutrition and economic values of meat, lentils, oatmeal, &c.—In the discussion which followed Dr. ALEXANDER GOODALL said that he thought the standard of Atwater for a child of 5 was rather too low. A healthy child of that age was always doing hard work; it was never at rest, and therefore it was not a fair comparison to place it against a man doing moderate work. He thought also that the addition of red meat to the dietary of children often proved of the greatest benefit.—Dr. JAMES RITCHIE said that the poor seemed unwilling to buy the cheaper articles of food; they were not accustomed to practise economy in this direction. He had seen several cases of tapeworm in children produced by the ingestion of raw meat. He said that a child required relatively much more protein food than did an adult. He had often seen a child fat and plump before walking become thin after walking owing to the excessive exercise to which it subjected itself. If mastication were properly performed then a smaller amount of food might be required. A child which bolted its food was always a thin child.

Dr. W. T. RITCHIE read a paper on Vagus Stimulation and Paresis in the Treatment of Cardiac Irregularities. The inhibitory effects of the vagus having been described, Dr. Ritchie pointed out that the action on the heart of drugs such as digitalis and strophanthus, although partly a direct one on the cardiac muscle, was partly an indirect one by stimulating the vagus. These drugs slowed the heart, strengthened the ventricular beats, depressed the conductivity of the *a.-v.* bundle, and in small doses depressed the excitability of the heart muscle in a manner comparable to vagus stimulation. All morbid conditions in which the auricles and ventricles were beating too rapidly ought to be influenced beneficially by therapeutic measures that stimulated the vagus—namely, compression of the vagus in the neck, deep respirations, digitalis, strophanthus, &c. These measures were serviceable in cases of rapid, irritable hearts, but in some cases of rhythmic tachycardia associated with a valvular lesion and cardiac failure they might prove ineffective. Vagus stimulation might likewise fail to cut short an attack of paroxysmal tachycardia. As a rule, the only cases presenting extra-systoles in which the administration of digitalis was followed by the disappearance of the irregularity were patients with cardiac failure, as a result possibly of a valvular lesion. In such cases the restoration of the pulse to complete regularity, being coincident with the disappearance of dyspnœa, cyanosis, œdema, and other manifestations of heart failure, was probably due to other factors than mere depression of excitability by vagus stimulation. In auricular fibrillation vagus stimulation, whether by digitalis or otherwise, acted beneficially in virtue of its action on the *a.-v.* bundle. The ventricles, previously beating irregularly and rapidly, now beat with a slower, although still irregular, rhythm; the lengthening of diastole gave the ventricular muscle longer periods of rest and its contractions became stronger. In the majority of cases presenting extra-systoles it was unnecessary to institute any treatment for the irregularity itself. Atropine was useful in cases of partial heart block, particularly in those with a tendency to develop

the Adams-Stokes syndrome. In those cases attention should also be directed to the avoidance of all conditions that might excite reflex stimulation of the cardio-inhibitory fibres of the vagus. In cases presenting the pulsus alternans, digitalis might be of much value in slowing and strengthening the heart, in abolishing the alternation, and in affording relief to the patient.

Reviews and Notices of Books.

Achondroplasia, its Nature and its Cause. A Study of the Stunting of Growth in Embryonic Cell Groups Caused by Amnion-pressure in the Different Stages of the Development of the Skeleton. (Anencephaly, Achondroplasia, Kakomelia.) By Dr. MURK JANSEN, Lecturer on Orthopædic Surgery, University of Leiden, Holland. With Introduction by Professor G. ELLIOT SMITH, F.R.S. Leiden: E. J. Brill, Limited. 1912. Pp. 98. Large 4to.

IN this important and elaborate treatise the author attributes the phenomena of achondroplasia, as well as such malformations as anencephaly, amyely, and kakomelia, to abnormally high amnion-pressure exerted on the fœtus at different stages in the development of the skeleton. He accepts Camille Dareste's conclusion, that during the first two weeks of embryonic development, anencephaly and amyely (defective closure of the cerebro-medullary canal) are due to a direct pressure of too small an amnion on the medullary ridges before they fuse to form the neural canal. In slighter forms of defective closure (spina bifida manifest and occult) the defect is frequently localised in the lumbo-sacral part of the spine—i.e., "the part which corresponds with the caudal pole of the embryo, and which is thus more exposed to direct amnion-pressure than other parts" (p. 64).

It is not, however, until between the third and sixth weeks that amnion-pressure becomes responsible for the peculiar phenomena of achondroplasia. At the end of the second week the embryo begins to undergo "physiological bending"—i.e., it becomes doubled up, and the head, neck, and tail curves appear. "Suppose," he says, "that in the fourth week, around an embryo which has just passed through its 'physiological bending' of the third week, the amnion sac lags behind in growth. The normal curves of the head, neck, and tail of the embryo will then be accentuated; the embryo will be folded up" (p. 66). Compression thus exerted, either in consequence of hydramnion which distends the amnion and causes it to become spherical, or by smallness of the amnion itself, may "press the head bend so as to squeeze the region of the branchial arches together, push forward the neck bend, thereby displace forwards the parts of the future occipital bone, and at the same time press upwards the caudal parts of the fœtus so as to cause the dorso-lumbar kyphosis which will last the lifetime of the fœtus" (p. 58).

The power of the amnion to infold the embryo continues until the end of the fifth week, and coincides with the scleroblastematous stage of the skeleton. But during the sixth week the embryo undergoes "physiological stretching," the soft scleroblastematous tissue of the spine becomes converted into cartilage, which rapidly develops and greatly increases in firmness. Hence it is less susceptible to pressure than formerly. At this period, however, the extremities, "lagging behind in development, remain tender and flexible scleroblastematous buds for some time after the spine has developed its cartilage." Therefore, the extremities—being less resistant than the spine, and at the same time subject to increasing pressure owing to the abnormally high tension produced in the amniotic sac by the increase in length and firmness of the embryonic trunk—are squeezed bloodless and become dwarfed and stunted in consequence of being deprived of nutrition. Ischæmia, therefore, is the result of the infolding of the embryo by amnion-pressure and the cause of the dwarf-phenomena in achondroplasia. During the sixth to eighth weeks, amnion-pressure is able to cause compression or curving of the extremities, kakomelia in which bones are lacking, hemi-ectromelia, oligodactyly, and other deformities, whilst the embryonic axis remains intact. Finally, after the eighth week, kakomelia with the normal number of bones (club-foot) is the result of amnion-pressure.

The above is but a bald summary of Dr. Jansen's theory, using many of his words, though it hardly does justice to the skill with which he marshalls his facts, and the lucid reasoning by which he supports his plausible hypothesis. We doubt, however, if the author will succeed in convincing his readers that achondroplasia is really the result of pressure exerted by the amnion on the young and plastic embryo, or whether future research will confirm his views. No one will dispute that the phenomena of achondroplasia and many other intra-uterine malformations might be produced in the manner that he describes. But he offers no convincing proofs that they are so caused. In fact, the evidence on which he relies in favour of amnion-pressure would seem to bear a different interpretation. He mentions, for instance, a fœtus described by Kocher: "a fœtus of three months, compressed, and quite spherical, so that the head, trunk, and nates form a circle, when seen from the side." The fœtus, he says, "dates from a time when the amniotic space was still extant, so that amnion-pressure must be considered as the probable cause of the malformation, although Kocher does not mention it." It is open to argument that in this and similar instances quoted from Marchand and Schwalbe, the amnion failed to develop because the embryo ceased to do so. The illustration on the frontispiece (from Kollmann) of a normal embryo of four weeks, surrounded by an unduly small ball-shaped amnion, through which the head, neck, and tail curves project, conveys the author's views with admirable simplicity, yet, being merely a diagram, it leaves us unconvinced.

If amnion-pressure be accepted as the cause of achondroplasia, it should also explain a large number of other skeletal maldevelopments and deformities to which the author does not refer. Such are: cleido-cranial dysostosis, also the large group of cases of abnormal ossification of cranial sutures, of which oxycephalus is the type, and the peculiar cranio-facial configuration of the Mongolian imbecile. It is quite possible that Dr. Jansen might hail these as other examples of the effects of amnion-pressure, and the striking resemblance which the subjects of each of these groups bear to members of the same group certainly suggests a common cause operating at some period in intra-uterine life. Moreover, it is true that "kakomelia" of various kinds is not infrequent in the subjects of cranial dysostoses and of Mongolian imbecility. But a grave objection to the theory that amnion-pressure is the cause of "kakomelia" and club-foot is that such-like deformities are occasionally associated with polydactyly. The late Dr. George Carpenter showed at a meeting of the Society for the Study of Disease in Children (Rep., Vol. I., 1900–1) two sisters, both of whose skulls were of markedly oxycephalic type. Both sisters had webbed fingers on each hand; the toes were also webbed, and some of the phalangeal bones were absent. All these deformities might be attributable to amnion-pressure but for the fact that each sister had six toes on each foot. Cleido-cranial dysostosis is usually regarded as analogous to achondroplasia, except that bones formed in membrane (skull,

palate, and clavicle) and not those formed in cartilage are imperfectly ossified. One might have expected the author to observe this analogy and to impute defective ossification of bones formed in membrane and in cartilage alike to the effects of amnion-pressure. But he deprives himself of the opportunity by his ingenious explanation of the reason why in achondroplasia bones formed in membrane are comparatively unaffected. This, he says, is because bones formed in membrane do not at the time of ossification increase more rapidly in volume than other tissues, whereas the formation in cartilage is associated with rapid expansion, cell division, interposition of intracellular substance, and increase of total mass. Hence, bones formed in cartilage are more liable than those formed in membrane to ischæmia and loss of nutrition occasioned by amnion-pressure. In face of this explanation we should like to know how the author accounts for the phenomena of cleido-cranial dysostosis, if otherwise than by pressure. Surely, the periosteum from which bone is formed is a very vascular structure, and as such should be as sensitive to ischæmia as cartilaginous tissue. How is it, then, that in achondroplasia the periosteum is, if anything, hypertrophied, and also the bone which it produces?

We cannot agree that in cases of congenital club-feet hereditary in the male line, or indeed any cases of congenital club-feet, the fault of the amnion may be ascertained by inductive reasoning. It is difficult to believe that in congenital club-feet hereditary in the male line each male from generation to generation should be able to determine and time the exact amount of amnion-pressure necessary to produce double talipes equino-varus in each of his descendants. The theory is almost as difficult to accept as one formerly held by orthopædic surgeons—namely, that congenital club-foot is due to "bad-packing" in utero, a maternal error of gestation the existence of which implies that in hereditary club-foot each male is so unfortunate as to mate with an inveterate "bad-packer" from generation to generation. Dr. Jansen, however, rightly observes on this point that "the maternal parts cannot be considered at fault." We cannot, again, follow the author in ascribing hare-lip, cleft-palate, agnathy, and micrognathy to the effects of amniotic pressure. All these defects are commonly hereditary, and are therefore unlikely to be due to any mechanical cause; they are frequently associated with congenital malformation of the heart, imperforate anus, and other deformities which are difficult to reconcile with Dr. Jansen's views. If amnion-pressure is responsible for hare-lip and cleft-palate, it should also account for such minor kindred defects as hereditary absence of lateral or central incisors, yet the latter supposition appears to be untenable.

In offering these criticisms we have no desire to disparage the clever special pleading by which the author maintains his thesis. But at each step we feel that he only selects such phenomena as look as if they might be due to pressure and leaves many others unexplained. Throughout his treatise he makes no allusion to the light thrown on teratology and congenital hereditary malformations in general by the doctrines of Mendel and Bateson. Modern literature on this subject leads us to regard the subjects of achondroplasia, cleido-cranial dysostosis, microcephaly, and Mongolism as "biological variations," rather than as pathological specimen. From this point of view achondroplasia is only pathological in the sense that it hampers the individual in the struggle for existence and in competition with his fellow men. As Hastings Gilford has recently maintained,[1] achondroplasia, strictly comparable to the condition in man, exists as a normal variation in certain canine species, such as the dachshund, dandie, turnspit, and Sussex spaniel, and becomes in them a "biological asset" rather than a disease. It is hardly credible that canine achondroplasia is due to the artificial cultivation of an undersized amnion, and, this being so, there seems no reason for assuming that amnion-pressure is responsible for the human achondroplasic dwarf.

[1] Relation of Biology to Pathology, Brit. Med. Jour., June 8th, 1912.

The National Insurance Act, 1911, Explained, Annotated, and Indexed, with Appendices consisting of the Insurance Commissioners' Official Explanatory Leaflets, Treasury Regulations for the Joint Committee, Tables of Reserve Values and Voluntary Contributions, Regulations for Procedure by the Umpire, &c. By A. S. PRINGLE, B.A., LL.B. Cantab., LL.B. Edin., Advocate. London and Edinburgh: William Green and Sons. 1912. Pp. 564. Price 10*s.* 6*d.* net.

Mr. Pringle adds an important volume to those already compiled in preparation for the coming into force of the National Insurance Act, his work embodying, as its title-page indicates, a considerable bulk of explanatory matter of an official nature, regulations, and tables. As a matter of fact, the appendices fill about 80 pages; there are 36 pages of introduction, and the rest of the book, so far as it is not occupied by a table of contents and an unusually full and useful index, consists of the Act itself with the author's notes and suggestions appended to each section.

Of the introductory pages we can only complain that they are, if anything, a trifle brief, for they contain a clearly expressed general outline of the policy of the Act, but leave us with the impression that a few more pages devoted to a slightly less terse explanation of such a subject as its finance might have rendered the matter treated of a little more easy to grasp. However, we accept the book as the author intends to present it to us, as a text-book which avoids expressions of opinion on controversial questions of policy, and does not prophesy unduly as to the actions of Insurance Commissioners and others charged with important duties and discretions. It is also free from legal technicalities, as a book should be which is intended for the guidance of the vast class of laymen who, officially and unofficially, will be concerned in bringing the Act into operation.

The author refers in his preface to the ampleness of his index, and we cordially agree with him that it should enable lawyer or layman to find his way quickly about the mazes of the Act itself. It will, however, also guide him to a series of carefully compiled and valuable notes appended to the various sections, which at the present stage of the proceedings, when we are all waiting for the turmoil to begin, are not less interesting, because necessarily in many cases of a more or less speculative nature. For example, in dealing with the points which may arise in connexion with the supply of medicines, Mr. Pringle points out that the medical man is not allowed to dispense medicines except in accordance with recommendations to be made by the Commissioners, but that "in country districts where there is no chemist's shop within reasonable distance, e.g., Orkney and Shetland and the outer isles, the obvious alternative is to allow the doctor to dispense drugs, as he does at present, and this no doubt will be done." There are regions not so far distant from shops as the outer isles, where presumably dispensing by medical men will have to continue, at any rate for a time, and Mr. Pringle points to other difficulties which may arise in conceivable circumstances. There is the question of "reasonable price" provided for in Section 15, the section already referred to, which treats of the supply of drugs. Mr. Pringle hints at the possibility of a ring being formed by pharmacists to force up prices, and submits that

the counter move on the part of the Committee which the Commissioners are empowered to authorise will take the form of recourse to the medical man and of allowing him to dispense his own medicines. As to this we have no doubt that members of the medical profession will take up whatever position may be desirable in order to obtain for their patients a supply of drugs of suitable quality, but we do not regard them as likely to lend themselves to any attempt to get medicines for insured patients at less than a fair price. The medical profession is still engaged in its struggle to secure adequate payment for medical benefits, ostensibly paid for by an elaborate and costly system of insurance, and it is not likely to forget that struggle. Another point to which Mr. Pringle calls attention in connexion with the supply of medicines leads him to make the suggestion with regard to the method of payment for them, that the prescription given by the medical man will become the voucher upon which the druggist will recover payment from the Insurance Committee. Such a system properly regulated and strictly carried out should have the good result of preventing the improper use of a prescription after the occasion for which it has been given.

However, the machinery of the Act will soon be submitted to the test of practical experience, and the perusal of this book impresses upon the reader the fact that at the present moment it is very difficult to formulate an opinion as to its future effect. Debates upon features in it, such as the treatment of the medical profession, and the questions relating to the domestic servant and the agricultural labourer, have probably had the effect of diverting public attention from many details of an extraordinarily comprehensive and complicated statute, and from duties and liabilities which will be realised only by degrees by those most directly affected.

Mr. Pringle has produced an ample volume, but it may safely be predicted that in future editions, enlarged by records of litigation and legal decisions, it will be ampler still. Meanwhile, it should rank among the leading treatises upon its subject.

Foods: Their Origin, Composition, and Manufacture. By WILLIAM TIBBLES, LL.D., M.D. (*Hon. Causâ*) Chicago, L.R.C.P. Edin., M.R.C.S. Eng., L.S.A. Lond. London: Baillière, Tindall, and Cox. 1912. Pp. 950. Price 18*s.* net.

BOOKS on foods are numerous enough, but we do not recall a work which sets out a comprehensive account of so many foods and beverages as does the one before us. The author has evidently taken considerable pains to collect from a mass of materials, spread over scientific journals, text-books, official publications, periodical literature, and so forth, the facts connected with the origin, composition, and manufacture of dietetic substances, and he is entitled to the gratitude of all interested, directly and indirectly, in the subject for bringing such useful information together within the boundaries of a single volume. The abundance of footnotes shows the care that has been taken to keep the subject matter in touch with modern contributions, and in these references we note he has drawn upon the analyses reported from THE LANCET Laboratory which have been published from time to time in our own columns.

The author has adopted a simple classification which resolves the sections into five in number: Part I. dealing with the chemical constituents of animal and vegetable foods (70 pages); Part II. with the materia alimentaria from the animal kingdom (296 pages); Part III. with the materia alimentaria from the vegetable kingdom (326 pages); Part IV. with condiments and spices (81 pages); and Part V. beverages (171 pages). Theoretical considerations do not receive exhaustive discussion, while physiological questions are dealt with only so far as first principles are concerned. The book is, in fact, a chemical rather than a physiological one, and a valuable feature of the work of the compiler is the very large number of analyses quoted giving the chemical composition of practically all known foods and beverages. This alone renders the book a satisfactory source of reference.

We should like to have the authority for the statement that milk-sugar is obtainable by hydrolysis of certain carbohydrates and other vegetable substances by enzymes or acids, and that it is a combination of dextrose and galactose. Further, it is stated in connexion with the preparation of milk-sugar from whey that the casein is first removed. Whey, of course, is the fluid obtained from milk after the removal of curd or casein by the action of rennet. Probably the removal of lactalbumin and lactoprotein is meant.

Der Gynäkologische Operationskursus. By Dr. WILHELM LIEPMANN, Privat-docent for Gynæcology and Obstetrics at the Friedrich Wilhelms University in Berlin. Second edition, revised and enlarged. With 409 (in large part coloured) illustrations. Berlin; August Hirschwald. 1912. Pp. 488. Price 24 marks.

THE fact that less than a year has elapsed since the appearance of the first edition of this book is sufficient testimony to the favour with which it has been received, and is a gratifying proof that the praise we bestowed upon it in our review of the first edition was not without justification. As the author says in his preface, the time has been too short to allow of his accepting all the suggestions of his critics, but the whole work has undergone a careful revision, and some sections have been considerably added to.

The section on the "Tuberculum schnitt," which we may term the interpubicular incision, has been rewritten. This incision is employed in the performance of a laparotomy in conjunction with Alexander-Adams operation. It is carried across the lower part of the abdomen for a distance of about 3 inches from the spine of the pubes on one side to the corresponding point on the other side, and just above the upper border of the symphysis pubis. The two ends of the incision extend to the two inguinal canals and expose about the middle third of them. The two canals are opened and the round ligaments picked up and dealt with as may be desired. The pyramidales and recti muscles, together with the fascia overlying them, are cut across in the line of the incision, and the abdominal cavity is opened by drawing down the peritoneum from above the bladder, supposing the latter to be exposed in the wound. Any adhesions or displacement of the uterus can then be dealt with. The advantages of the incision, according to the author, lie in the fact that it is concealed, in the presence of a layer of fascia in front of the pyramidales, and also between them and the recti muscles, which greatly increases the strength of this portion of the abdominal wall, and in the fact that it enables shortening of the round ligaments to be carried out through the same incision at the time that the abdomen is opened. Dr. Liepmann also describes a method he has employed on several occasions of implanting the stumps of the round ligaments into the cornua of the uterus as an efficient method of carrying out intraperitoneal shortening.

In discussing the removal of the appendages the author calls attention to the frequent occurrence of a peritoneal fold uniting the mesentery of the sigmoid flexure to the infundibulopelvic ligament. This close anatomical connexion may serve to explain the occurrence of adnexal tumours in virgins without gonorrhœa, especially on the left side, and also explains the burrowing of tumours of the left ovary when

arising from the hilum between the layers of the mesentery of the sigmoid flexure. Several interesting figures are given of this anatomical condition. A new figure is a sagittal section of the pelvis from a patient who died from carcinoma of the cervix uteri. This preparation shows the uterus almost destroyed by the growth, the bladder invaded, and the whole of the paravaginal and the para- and retro-rectal connective tissue infiltrated by new growth. In the section dealing with the treatment of prolapsus uteri great stress is laid not only on the union of the levatores ani muscles, but also of the layers of pelvic fascia which in this position, as in the abdominal wall, are of the utmost importance in preventing the occurrence of a hernial protrusion.

The book retains all the good points of the first edition, and we can cordially recommend it as an excellent manual of operative gynæcology.

The Treatment of Syphilis with Salvarsan. By Sanitätsrat Dr. WILHELM WECHSELMANN, of Berlin, Medical Director of the Skin and Venereal Disease Section, Rudolph Virchow Hospital, Berlin. With an Introduction by Professor Dr. PAUL EHRLICH, of Frankfurt-on-Main, Director of the Royal Institute for Experimental Therapeutics, Frankfurt. Only authorised translation, by ABR. L. WOLBARST, M.D., of New York, Professor of Genito-Urinary Diseases, New York School of Clinical Medicine, &c. With 15 textual figures and 16 coloured illustrations. London: Rebman, Limited; New York: Rebman Company. 1911. Pp. 175. Price 21*s.* net.

Dr. Wolbarst has done good service to medicine by translating into English this work on salvarsan by Dr. Wechselmann, who was responsible for testing the new method of treatment on the large amount of clinical material at his disposal. This small book, whose very extended title prepares the reader for what he may expect within the covers, contains the results which Dr. Wechselmann has obtained with salvarsan, not only on the body as a whole, but also on special organs, such as the eye; he has also studied the effect on the Wassermann reaction. The question of reinfection is discussed, and lastly, the contra-indications for the use of the drug are given. The estimate of the literature on the subject is valuable, as enabling the reader to appreciate the various points raised. The coloured illustrations show well the rapid improvement produced by the injection of salvarsan in a number of cases.

Psychological Medicine. By MAURICE CRAIG, M.D.Cantab., F.R.C.P. Lond. Second edition. London: J. and A. Churchill. 1912. Pp. 474. Price 12*s.* 6*d.* net.

THIS volume is the second edition of Dr. Craig's manual. A very widespread interest has been evinced in recent years in psychological medicine. The medical profession, as might be expected, has led the way in the investigation of mental disease, both on its clinical and its anatomical sides, while the attention of the general public has been drawn to the subject by the report of the Royal Commission upon the Feeble-minded and by the legislation therein proposed. It may be noted, too, that metaphysical problems are ceasing to be treated with the contempt which was their lot in the middle and last part of the nineteenth century, and that as a corollary problems of the phenomena of mind and of its connexion with the body loom largely in circles by no means medical. Dr. Craig points in his preface to the strange want of adequate provision for the mentally sick in those early stages when there is but little or no need for certification, and when therapeutic intervention is of great importance. It is to be hoped that public attention may before long be attracted by the fact that it is always and everywhere cheaper to prevent disease, whether of mind or of body, and to treat it at the earliest moment, than to let things drift until an incurable stage is reached. The signs of awakening interest are fortunately many.

The function of such a work as that of Dr. Craig is, no doubt, primarily to instruct the student, but it has further the important office of informing the general public through the well-instructed physician. The author very wisely leaves metaphysical questions on one side, and confines himself to the psychological category. Here he is insistent upon the intimate connexion of morbid physical states with morbid mental functions, and upon the necessity of approaching the clinical manifestations of mental disorder by an investigation of the bodily state. The style in which the work is written attracts the interest and attention of the reader, and from the point of view of both the student and the practitioner the matter is so arranged that well-defined mental pictures of the various affections described can be drawn. Of the matter itself we need only say that it has been entirely revised and brought up to date, and that, without diffuseness, it presents us with a very complete account of the present state of psychological medicine.

We feel that were such a work as this in the hands of every medical student and practitioner the solution of many of the problems raised by the Royal Commission on the Feeble-minded, and now confronting the Legislature, would not long be delayed.

Les Otites Moyennes et leurs Complications. Par PIERRE DESCOMPS et PAUL GIBERT. Paris: G. Steinheil. 1912. Pp. 256. Price 6 francs.

THE authors deal first with the etiology of middle-ear disease. Then follow in sequence the successive phases of the different varieties. It is stated that middle-ear disease is often found in children, and particularly in the newly born. During the periods of youth and early adolescence it is rarer, though frequently observed, especially as a complication of eruptive fevers. It becomes rarer still in the adult, and very rare in the aged. Heredity, temperament, and many other factors are considered in their relationship to aural diseases. First, general causes of disease, then local ones, are passed briefly under review. Next the pathogenesis, and after that the pathological anatomy, is dealt with. Various forms of otitis media are considered seriatim. In the second part the authors deal with the complications attendant on the various forms of middle-ear disease, their pathology, symptoms, and diagnosis.

Dr. Descomps and Dr. Gibert have written a plain and straightforward account of the diseases of the middle ear alone, a course which has seemed to them to be warranted. Whether that view will be approved by the profession remains to be seen; it does not appeal to us as being wise to omit all consideration of the external and internal ear. What the book does deal with is well done, and it may be relied on as a guide to middle-ear disease.

Grundriss der Biochemie für Studierende und Aerzte. Von Professor CARL OPPENHEIMER, Dr. Phil. et Med., Berlin. Leipzig: Georg Thieme. 1912. Pp. 399. Price 9 marks.

THE number of books recently published on bio-chemistry shows that chemists and physiologists alike are becoming more keenly alive to the importance of studying this subject. Much better would it be for the medical student if a larger part of his course in chemistry were devoted to it. As a rule, the average medical student is woefully ignorant of real chemical knowledge—especially organic chemistry—when he is called on to study the chemical problems of the living body in health and disease. The author lays down the essential principles of the subject, but exact descriptions of individual substances as well as

analyses of the composition of the body and methods are omitted.

The work is divided into two parts—a systematic part (pp. 1–238) and an analytical-physiological part (pp. 239–388). First the chemical substances of the animal body are dealt with, beginning with the aliphatic series—alcohols, fats, lipoids, and carbohydrates. There is appended to each section a short description of the physiology of the substance considered—e.g., lipoids, carbohydrates—which is particularly useful. Then follow the cyclic substances, benzol and its derivatives, the general and special chemistry of proteins, and finally the various ferments. Particular attention is given to the oxidases, while there is a specially good account of the biological importance of ferments and of antigens and antibodies. In Part II. the chemical functions of the tissues and of the organism as a whole are dealt with under the following heads: composition of living substance, metabolism, the introduction and transport of food material, secretion, excretion, regulation of functions (by liver, blood-forming organs and internal secretions or hormones), and the chemistry of the connective tissues and muscles.

The work is excellent and up-to-date, and gives the reader just that kind of information which is required to enable him to follow with intelligent interest the chemical events that characterise activities in the living body. We have great pleasure in recommending its perusal, while Dr. Oppenheimer's name is a guarantee of sound learning.

Die Morphologie der Missbildungen des Menschen und der Tiere. Herausgegeben von Dr. ERNST SCHWALBE, Professor der Allgemeinen Pathologie und Pathologischen Anatomie an der Universität Rostock. *Die Missbildungen des Ohres.* Von HERMANN MARX. Jena: Gustav Fischer. 1911. Pp. 67. Price 2.50 marks.

THIS section of the extensive treatise that is now appearing contains the account of the malformations of the ear, both in man and in the lower animals. The author divides the malformations into those occurring in viable fœtuses and those found in fœtuses incapable of life. In the former class he takes first the abnormalities of the auricle, then those of the middle ear, and lastly those of the internal ear, and in each case the main varieties are described. In the case of malformations seen in those embryos incapable of life such a classification is inapplicable, and he divides these malformations into the unilateral and the bilateral forms. The book contains 101 illustrations, and these exhibit nearly every form mentioned. The copious bibliography appended should prove of value. This is certainly the most elaborate account yet published of the malformations of the ear.

Principles and Practice of Physical Diagnosis. By JOHN C. DA COSTA, jun., M.D., Assistant Professor of Clinical Medicine, Jefferson Medical College. Second edition, thoroughly revised. With 225 original illustrations. London and Philadelphia: W. B. Saunders Company. 1911. Pp. 557. Price 15*s.*

THE author's purpose in writing this book is to present, within reasonable compass, the principles of physical diagnosis, and to apply this means of research to the study of thoracic and abdominal diseases. It will therefore be found especially useful to students when commencing their clinical work in the medical wards and out-patient departments. The methods of examining the various systems of the body are well described and the deductions to be drawn from the presence or absence of the varying physical signs are clearly explained.

The second edition has been carefully revised as to text and illustrations without departing from the original plan and scope of the book. New matter has been incorporated so as to bring the work up to modern requirements. The subject of sphygmomanometry receives full attention. The instrumental estimation of the arterial blood pressure shows the degree of arterial tension with greater accuracy than simple feeling of the pulse affords, and is further useful as a standard that is capable of being recorded for future reference and comparison. It is advisable, therefore, that students should be acquainted with the various forms of instruments that have been devised. Dr. Da Costa gives a full description of such instruments and indicates the manner in which they should be employed. He also refers at length to the sphygmocardiogram and its use in clinical medicine. The subject of arrhythmia naturally follows, and nodal rhythm, heart-block, and its varieties are ably discussed.

We can recommend this volume as a valuable addition to the ordinary text-books on medicine. The student requires some written guide to help him in understanding the large number of new terms and facts which will be brought to his notice when actually beginning the study of clinical medicine, and in the work now under consideration he will find much that is interesting and instructive.

Common Disorders and Diseases of Childhood. By G. F. STILL, M.A., M.D. Cantab., F.R.C.P. Lond. Second edition. London: Hodder and Stoughton. Pp. 813. Price 16*s.* net.

THIS work by Dr. Still is possibly destined to reach many editions, and he is to be congratulated that a second edition has been called for within so short a time after the publication of the first. A book of this kind is often more valuable to the average man in practice than a systematic text-book on the diseases of children. In practice we meet with a hundred common disorders to one rare or interesting case, and it is these everyday ailments that the practitioner is called upon to treat, in circumstances where his success or failure in the public opinion may largely depend on the result.

Much new matter has been introduced into this edition, notably in respect of epilepsy, asthma, hydrocephalus, congenital syphilis, and anterior poliomyelitis. With respect to the indications for surgical interference in the case of enlarged tonsils and adenoids Dr. Still gives some sage advice. If the routine examination of school children has elicited no other evidence, it has at least proved that there exists an enormous diversity of opinion as to the conditions that call for the surgical removal of hypertrophied lymphatic structures in the naso-pharynx. Recurrent earache and, still more, slight degrees of deafness are strong grounds for operation. So also are glands at the angle of the jaw, deformity of the chest, and recurrent tonsillitis.

In the chapter on convulsive disorders the author emphasises the difference between the acquired condition of nervous irritability such as occurs in rickets, and the hereditary or congenital condition in which convulsions manifest themselves at an early date, often before the first three months of life. We notice that Dr. Still avoids the use of the term "spasmophilia" so largely employed by German writers to cover that particular group of convulsions which occur in rickety children. Head-nodding and nystagmus, though generally included as belonging to this group, are dignified by a separate chapter to themselves. In his chapter on congenital syphilis Dr. Still refers to the low incidence of this disease in London children; and, as the result of his own experience, he states that amongst 4830 consecutive out-patients in the children's department at King's College Hospital there was a proportion of congenital syphilis which only amounted to 0·6 per cent. There can be no doubt that we do not see the same number of florid cases of syphilis in our own hospitals

that are seen, for instance, in Berlin or Vienna; but the question still remains to be decided whether this apparent divergence is due to a mitigation in the type of the disease as presented here, or to a real national immunity. In certain cases in which reliance has been placed on the Wassermann test a much larger proportion of syphilitics has been detected among groups of London children than one would be led to suppose from mere clinical examination. With respect to the contagiousness of inherited syphilis, a question which is just now much discussed, Dr. Still says that he is in entire agreement with the pronouncement of the late Dr. Coutts, that "inherited syphilis is occasionally contagious—but that the virulence of such contagion has been grossly and vastly over-estimated."

In addition to the new material added to this useful work we notice that many of the chapters have been submitted to a very thorough degree of revision, especially the chapter relating to constipation. As now developed we regard this chapter as one of the most practical expositions of the causes and treatment of this condition with which we are acquainted.

LIBRARY TABLE.

Lectures upon the Nursing of Infectious Diseases. By F. J. WOOLLACOTT, M.A., M.D., B.Ch. Oxon., D.P.H., Senior Assistant Medical Officer, Grove Hospital, Metropolitan Asylums Board. Second edition. London: Scientific Press, Limited. 1912. Pp. 149. Price 2*s.* 6*d.* net.—In the second edition of this practical handbook (the first edition of which was reviewed in THE LANCET of June 23rd, 1906) only such alterations have been made as were essential to bring the book up to date. Attention is paid to the new methods of barrier and cubicle nursing, regarding which there has recently appeared some discussion in our columns. These methods are devised to obviate the disadvantages of nursing in large wards—viz., the possibility of contracting a secondary disease, the possible spread of complications, and the liability to continued reinfection. In barrier nursing, though there is no actual partition between the beds, a strict isolation in bed is maintained, just as though there were, nothing being allowed to pass from bed to bed, and every care is taken so to act as though the patients were in separate rooms. It is a less lonesome plan for the patient, but of course there is nothing to prevent aerial infection. In cubicle nursing each patient occupies a cubicle separated from the others by partitions about 7 ft. high, the upper part being of glass. Each cubicle has a basin and water-supply, and contains overalls and towels for the medical man and the nurse. There are separate kitchens, sterilisers, bathrooms and w.c.'s, with bed-pan and scalding-sinks, for each group of cubicles, and the cubicle and its contents are easily disinfected after the discharge of each patient. Nothing is allowed to pass from one cubicle to another. The author remarks that on this plan the same nurse can look after patients with different infectious diseases provided the proper care is taken. The book is well written and sound.

Feeding and Care of Infants and Children, with Special Reference to Cases of Difficult Digestion. By Nurse HUGHES. London: Simpkin, Marshall, Hamilton, Kent, and Co. Pp. 120. Price 2*s.* 6*d.*—This little book contains many useful and practical hints on the clothing and general care of infants. The washing out of the baby's mouth is evidently regarded as an essential element in the ritual of the toilet; this, however, is a point with which some English medical men with large experience and most German authorities do not agree. In such a book a chapter dealing with the importance of breast-feeding and the means of overcoming some of the minor difficulties that arise in its management should surely find a place, and the omission to deal with the subject is remarkable. Further, the hygiene of the mother herself during pregnancy and in the early months after parturition, when she should be fulfilling her normal function of suckling the child, would seem to be of sufficient importance to have been discussed. This important factor in the care of infants is also neglected in this book. The reader of the chapters on feeding and medical treatment, which occupy a very large part of the book, would imagine that breast-fed babies, and even healthy artificially-fed ones, were rare phenomena. On the other hand, full details are given of abnormal cases, described as "cases treated," to which Nurse Hughes was "called in." Abnormal children are dealt with in all the text-books upon the diseases of children, but the only excuse for a lay individual to write a book on the feeding of infants is to be found in a full consideration of normal cases, an excuse which is not afforded by this book. At the end of the book Nurse Hughes regrets that maternity nurses are not more fully instructed in the details of artificial feeding. The real point for regret is that they do not receive instruction on, and hence do not realise the importance and value of, breast-feeding; if they did there would be fewer children referred to artificial feeding and treatment by the various methods, which are described by Nurse Hughes, for the abnormal child.

Zabludowski's Technik der Massage. Dritte, veränderte und vermehrte Auflage, bearbeitet von Dr. J. EIGER, Leitender Arzt des Berliner Ambulatoriums für Massage. Mit 80 Abbildungen. Leipzig: Georg Thieme. 1911. Pp. 140. Price 4 marks.—As the editor of this, the third, edition says, massage is both an art and a science, but as the main object of this work is to instruct the reader in the art of massage, the writer does not think it necessary to explain its scientific basis more than is necessary to allow the purpose of the massage exercises to be understood. The various manipulations are described in turn, and the general rules for the performance of massage are laid down. Then 80 figures are given exhibiting the application of massage to different parts of the body. The book is very practical in nature.

JOURNALS AND MAGAZINES.

School Hygiene. London: Adlard and Son. Quarterly, 1*s.*—The last number of this quarterly is not only of a clinically interesting, but of a very practical, character. And especially must this be said of Mr. P. Macleod Yearsley's article on the Treatment of Suppurating Ears in School Children. Such children are described as the *bêtes noires* of hospital out-patient department and of private doctor alike. "Frankly, they are nuisances as out-patients, and they do not pay the private doctor." These children require systematic attention, and because of this "are peculiarly suitable for school clinics, where they can be regularly treated and frequently inspected by a staff of surgeons and nurses, under the supervision of a specialist." The causes of chronic discharge are considered, a preliminary word being said on chronic eczema of the external auditory meatus. This is usually caused by irritation of a discharge from the middle ear, and best treated by attention to this. But "in feeble children, of poor nutrition, underfed, and debilitated by bad hygienic surroundings," there is sometimes an eczematous condition associated with discharge, occasionally purulent, which can, however, easily be recognised by careful syringing and mopping. The causes of chronic middle-ear suppuration are set down as (1) the infective diseases; (2) tubercle; (3) adenoids and inflammatory conditions of the oro- and naso-pharynx. The majority of cases are stated to be due to the third cause. The

efficacy of the treatment "is largely influenced by the care taken at the first examination. This should never be considered as complete unless the surgeon has a clear conception of the precise condition of the ear, the oro- and naso-pharynx, tonsils, and teeth, with the amount of hearing and the presence or absence of complications." Sources of infection should be particularly sought for. Hearing is tested by using whispered or spoken speech; "there is no need to make elaborate tests with the tuning fork." The cases are classified for treatment as (*a*) cases not requiring surgical treatment, which can at once be placed in the hands of the nurse; and (*b*) cases requiring surgical treatment. In this second group are (1) adenoids and tonsils; (2) carious teeth; (3) cases with large granulations; and (4) more serious complications. The general lines of treatment to be pursued in all uncomplicated cases are (1) to remove all sources of irritation and infection; (2) to provide drainage; and (3) to protect the middle-ear. In syringing, boric acid lotion is not, in the majority of cases, sufficient, the antiseptics recommended being perchloride of mercury 1 in 2000, carbolic acid 1 in 80, chinosol 1 in 1000, and formalin 1 in 2000. "This last should not be used if it causes pain." In muco-purulent cases a useful lotion is one containing glycerinum acidi borici, glycerinum acidi carbolici, āā ℥ss, aquam ad ℥v. Insufflations are to be used cautiously and only when the patient is seen daily. The practical nature of the article has only been indicated in the copious quotations; there is very much more of value. Apart from this, for which all school clinicians must be grateful, Mr. Macleod Yearsley's paper indicates the very thorough kind of treatment which is being led up to by medical inspection, a kind of treatment which, on any large scale at any rate, has never been previously attempted. Dr. J. Graham Forbes contributes a paper on the Pollution of Swimming Baths,[1] followed by an account of the discussion at the Medical Officers of Schools Association. Two methods are suggested to get rid of impurities: (1) that of continuous precipitation in addition to filtration and aeration, as in use at Belfast; and (2) the addition of electrolytic disinfecting fluid, as at Poplar. Both methods are stated to keep the water pure and are less costly than emptying and renewal of water. Another valuable paper is that by Dr. Clive Rivière on Sleep. Deficiency of sleep is a well-known factor in producing conditions of malnutrition, and the article puts this factor into an important position and gives some useful suggestions on the amount of sleep normally required at different ages. The practice of afternoon sleeping in schools, as followed at the open-air schools, is warmly commended, and its extension urged. Incidentally, Dr. Rivière reviews under the heading of physiology the theories as to how sleep is brought about, and it is said that no one of the theories "offers an adequate explanation." This may probably be because the explanation of sleep is not to be found in ordinary physiology, but in the study of hypnotic, trance, and allied conditions from the psychological point of view. This number contains also an interesting account of epidemic poliomyelitis in West Suffolk by Dr. D. A. Carruthers, with particular reference to school infection.

The Child.—In the July number Dr. Allan Warner, school medical officer at Leicester, advocates open-air schools by the seaside, and enforces his counsel with the experience of the Leicester education committee's seaside school at Mablethorpe, Lincolnshire. Gertrude Austin describes the method of treating surgical tuberculosis by exposure to the sun's rays, as practised by Dr. Rollier in his clinics at Leysin with admirable results. Dr. D. M. Taylor discusses residential open-air schools for delicate and tuberculous children. The Rev. Cecil Grant urges co-education for boys and girls, especially as a moral influence, and gives his experience first at Keswick and subsequently at St. George's School, Harpenden. The Hon. Mrs. Franklin describes the Parents' National Educational Union and the children's gathering at Winchester. Miss Mary Louch writes a paper on Child Welfare and the Child Study Society. The Conference on Diet in Public, Secondary, and Private Schools is commented on by Mr. Charles E. Hecht, and Child Welfare and Periodical Literature by the Rev. Frank Johnson. Mr. Alfred Stead writes of his father's work for children. Anstey College for Physical Training and Hygiene is described by Miss R. Anstey, and Child Welfare at the Kingsway Crèche by Mrs. Price Hughes and Sister Hope.

[1] THE LANCET, June 15th, 1912, p. 1638.

New Inventions.

MODIFIED UTERINE CUPPER.

THE illustration represents a modification of a uterine cupper designed by me over four years ago. This instrument having been found most useful in my hands for the purposes for which it was designed, I thought it could be made still more useful to the gynæcologist by having a perforated nozzle to screw on the edge of the cup, and, being made in three sizes, fit the cervical canal closely, exhaustion being obtained by drawing down the central rod or "plunger." The "os" and interior of the cervix can thus be acted upon as well as the interior of the uterus by the same instrument, the important point being to select a suitable sized nozzle to plug the cervical canal, otherwise all suction action would be lost when wanted to withdraw secretions or produce hyperæmia of the internal surface.

Messrs. Hewlett and Son, Limited, Charlotte-street, London, E.C., have taken much trouble to carry out this modification and thus make the cupper doubly useful.

Gloucester-terrace, W. ALEXANDER DUKE, F.R.C.P. Irel.

BRITISH MEDICAL BENEVOLENT FUND.

AT the June meeting of the committee 14 cases were considered and grants amounting to £81 made to 11 of the applicants. Appended is an abstract of the cases relieved:—

Widow, aged 56, of Lic. Med. Dub. Quite unprovided for at husband's recent death, and children unable to help. Has rented a small flat, and hopes to support herself by taking one or two boarders. Voted £5 (in addition to £5 last month).

Daughter, aged 43, of late F.R.C.S. No income, and unable to support herself owing to constant ill-health. Relieved 12 times, £110. Voted £5 (in addition to £2 last month).

Daughter, aged 41, of late M.R.C.S. Has supported herself for many years as a shorthand typist, but lost her post a couple of years ago through changes in the firm, and is now dependent on occasional work, which she finds very difficult to get. Voted £5.

Widow, aged 67, of L.F.P.S. Glasg. Only income £10 a year from another charity, and health very indifferent. No children. Relieved eight times, £80. Voted £10.

Wife, aged 38, of M.R.C.S., L.R.C.P., who has been incapacitated for nearly seven years, but is now just able to take a light post. No income. Three children, all dependent. Relieved twice, £15. Voted £10.

Widow, aged 68, of M.R.C.S. Since husband's death, more than 20 years ago, has supported herself by taking boarders, but finds increasing difficulties owing to deterioration of the neighbourhood. Relieved six times, £72. Voted £5.

Widow, aged 38, of M.R.C.S., L.R.C.P. No income; endeavours to support herself by nursing, but earnings are at present very small. Three children, the youngest only a year old. Relieved once, £10. Voted £10.

Widow, aged 66, of L.R.C.S. Edin. Only income a pension of £30 from another charity. Relieved twice, £24. Voted £6.

Widow, aged 54, of M.R.C.S. Has a small income, but asks for help towards expenses incurred by her daughter, who suffers from spinal caries. Relieved once, £5. Voted £5.

Daughter, aged 56, of late M.R.C.S. No income, and quite unable to support herself owing to long-continued ill-health. Relieved six times, £60. Voted £10.

Widow, aged 54, of L.R.C.S. Edin. Quite unprovided for at husband's death a year ago, and has only been able to obtain a post for a few months at a nominal salary. Relieved once, £10. Voted £10.

Contributions may be sent to the honorary treasurer, Dr. S. West, 15, Wimpole-street, W.

THE LANCET.

LONDON: SATURDAY, JULY 13, 1912.

The Bicentenary of the Medical School of the University of Dublin.

THE celebration of the bicentenary of the Medical School of the University of Dublin, more familiarly known to us and to her alumni as Trinity College, proved to be a remarkable occasion. So carefully planned were the arrangements of Professor A. F. DIXON and his collaborators, on whom rested the burden of organisation, that the numerous and important functions were discharged with complete success. In any circumstances such a celebration must be of extreme interest to a great number of medical men, as well as to those exponents of the sciences ancillary to medical progress, whose connexion with our profession in various forms sheds the highest lustre on our calling, displaying it to the world as an extraordinary blend of art and science, of theory and practice; but in the special circumstances which prevailed at Dublin last week all the elements of interest were represented to an extraordinary degree. Great men were present and great orations were delivered; high ceremonial was duly observed; the various functions took place in truly harmonious settings; the organisation by which such a series of ceremonies and range of tableaux was rendered possible and effective worked admirably from start to finish both in design and detail; and yet the proceedings were not too formal. Undoubtedly, in recording the complete success of the celebration, mention should be made of the fact that much was done under sunny skies which could not have been done in rain, and would have been only half done in cold or gloom; but Ireland is still the land of natural portents, and we prefer to attribute the kindness of Heaven to no fortunate accident, but rather to the working of spells known to some mystic Fellow of Trinity—a "charm of woven paces and waving hands"—whereby the winds were subdued and the clouds were kept asunder.

The international character of the delegacies must have been very gratifying to the authorities of Trinity College, and, while it proved that in all parts of the world the repute of that Society is famous, it displayed also in an unmistakable way the wide geographical range over which scientific medicine now enjoys sway. Medicine, indeed, more than any other factor in modern civilisation, provides common attractions for intellectual workers; and this because medicine is an art as well as a science—an art in that we employ regulated procedures towards definite ends, and a science in that our actions are founded upon an ordered knowledge of natural phenomena and of the relations between them. In medicine, therefore, there are an incalculable number of points concerning which personal intercommunication between the protagonists of various schools of thought is necessary. The wisdom of our deeds may be challenged at any point in the line of operation, and the confines of our ordered knowledge fluctuate day by day. Hence there is more room for practical differences of opinion among our leaders than will be found among the guiding spirits of other intellectual sections of the community. In medicine the number of circumstances that are altered by the habits or climes of a people are incalculable, while every individual of every nation may present points that can be studied to the advantage of that individual, as well as collated for the formation of some general or statistical rules. Again, the extraordinarily inclusive nature of modern medicine—the annexing hand which has been laid by our pioneers upon all branches of physics, of biology, and of chemistry—makes of the representatives of our learning a very heterogeneous body. The delegates of the new society and of the old university, the academic teacher, the initiator of departures, the exponent of a system, the demonstrator of a detail, all have their place at any medical meeting, and typify by their presence the liberality of view, and proper regard alike for tradition and innovation which make medicine the living thing that it is.

At Dublin, in addition to the representatives of all the home universities and corporations, and of the universities and corporations of our colonies and of the United States, there were found delegates from Paris, Berlin, Munich, Bonn, Vienna, Geneva, Oporto, Liège, Ghent, Moscow, St. Petersburg, Tomsk, Copenhagen, Stockholm, Helsingfors, Upsala, Groningen, Utrecht, Tokio, Kyoto. This great assemblage of foreign thought came to do honour to Trinity College, Dublin, because during 200 years the medical school of the University has striven with success to advance the cause of medicine. During that extended period there have emerged regularly from the walls of Trinity not only learned physicians, surgeons, and anatomists, but a constant series of able practitioners, who have borne witness to medical truth in all parts of the world, and who by their lives have proved that in the development of medicine lies much of the prosperity and well-being of progressive peoples. It was fitting that such a meeting as this should receive a permanent memorial, and we learn with pleasure that it is proposed to found a travelling Fellowship in abiding honour of the bicentenary of the birth of the Medical School of Trinity College. As Mr. DANCER PUREFOY, President of the Royal College of Surgeons in Ireland, in making the proposal public, rightly said, the proceedings at the celebration were attended by so many distinguished men from all parts of Europe that it becomes particularly fitting to show the interest and importance which the graduates of Trinity College themselves attach to the date and to the demonstrations in honour of their Alma Mater. The foundation of a travelling Fellowship in memory of the occasion is an idea that should appeal to every medical graduate of the University of Dublin, and, indeed, to the graduates of all the other faculties. The distinguishing mark of the leaders of thought at Trinity College has always been the wide range of their learning; they have been famous

for their all-round capabilities and sometimes a little impatient of the pedantic specialist. In the medical faculty this quality of mind has been strongly apparent, and it is one that should win for the project of a medical travelling Fellowship wide support, not only from within that faculty, but from the University at large. The men turned out according to the ideals of the Dublin teachers are exactly those who will be likely to benefit fully by a travelling Fellowship, having the proper receptivity as well as adequate equipment. Whether, however, this scheme come to maturity or no, it is fitting that Trinity College should mark for permanent record the occasion of the bicentenary celebration, when the medicine of the nations assembled to do her honour.

Perforated Duodenal Ulcer.

THE question of the frequency of ulcer of the duodenum has not yet been settled, and, indeed, highly divergent views on this subject exist. Some consider that the condition is very common and that it requires for its treatment a gastro-enterostomy, while others look upon it as a somewhat rare affection and consider it in most cases to be curable by medical means. But however divergent may be the current views as to the frequency of a duodenal ulcer there cannot be two opinions as to the importance of the condition when an ulcer of the duodenum has perforated into the peritoneal cavity, and in the present number of THE LANCET Mr. D'ARCY POWER gives a graphic account of five cases of duodenal ulcer on which he has operated. Four of these occurred within six weeks, illustrating once again the singular frequency of these coincidental appearances of interesting pathological conditions. The vital importance of an early recognition of the occurrence of perforation of a duodenal ulcer makes it desirable that the symptoms should be widely known, so that operation may not be delayed. The most remarkable point is the frequent absence of all symptoms of any abdominal trouble before the occurrence of the perforation; and this is, indeed, a very helpful point in diagnosis, for it may almost be said that if a man be suddenly seized with acute abdominal pain sufficient to cause collapse, and if previously he has had no abdominal symptoms, it is extremely probable that a perforation of a duodenal ulcer has occurred. The contrast with gastric ulcer is great, for here it is very rare for perforation to occur without previous symptoms. An appreciation of this point will go far in guiding the surgeon to a correct diagnosis.

Another sign which is of value, if correctly interpreted, but liable to mislead those unaware of it, is the improvement which occurs in cases of duodenal perforation shortly after the onset of symptoms; this is a very striking fact. If its existence is not known, the severity of the accident will not be recognised until the advent of general peritonitis reveals it, but if it be known and watched for it may serve to confirm the diagnosis. The explanation of this temporary improvement is undoubtedly to be found in the unirritating nature of the fluid in the duodenum. Perforation appears to occur generally when the pylorus is closed, and the fluid which escapes into the peritoneal cavity is merely the secretion of the upper part of the duodenum; it is alkaline in reaction, and, in fact, is mainly composed of the secretion of Brunner's glands. Another noticeable thing is the large proportion of cases in which men are affected. In non-perforating duodenal ulcer men are much more frequently affected than women, but in the perforating cases the percentage is still greater. It is difficult to suggest any satisfactory reason for this; perhaps it may be related somehow to food, while it is almost inevitable to suggest that it may be connected with smoking, a matter which it would be of interest to examine into further. But whatever may be the explanation, there is no doubt of the fact, and it must form an important factor in the diagnosis. Mr. D'ARCY POWER has pointed out that the peritoneal fluid poured out in response to the perforation is for a time sterile, or almost sterile, and this fact is significant, for it enhances the probability of a favourable issue. Only a short period, however, elapses before an extensive microbic infection occurs, and general peritonitis will follow before many hours have passed by, so that unless the opportunity of an early operation is taken a much more serious condition will have formed. This naturally leads us to the prognosis of these cases, and we find that, if the condition has been recognised soon and an operation has been performed, the prognosis is wonderfully good; a very large proportion of the cases recover, and, in fact, some surgeons have had lengthy series of successful cases. The main cause of this success is probably the unirritating nature of the fluid which escapes from the duodenum; it is exceptional for much food to escape and the acid gastric contents are generally cut off by the firm contraction of the pylorus. What operation is required? Closure of the perforation is usually easy, for the edges can be drawn together with a few sutures, and no fear of constricting the bowel need be entertained. The important point is whether it is necessary or advisable to perform a gastro-enterostomy at the same time. It is true that in most of those cases in which a gastro-enterostomy has not been performed no further signs of the duodenal ulcer have been seen, still there is no doubt that a gastro-enterostomy does exert a very powerful influence in favour of the healing of the ulcer. Therefore, if the condition of the patient permits, it is advisable to complete the operation of closing the perforation by the performance of a gastro-enterostomy.

With these results of the treatment of perforated duodenal ulcer may be compared the results of operations on ulcers of the duodenum which have not perforated. Here the conditions are somewhat altered; serious symptoms must have been present and must have persisted for no little time before a surgeon would think it necessary to resort to an operation. This is quite different from the ordinary perforating duodenal ulcer, where in most cases at least there have been no previous symptoms, or at most very few indeed. In this issue of THE LANCET we publish a paper by Mr. JAMES SHERREN on the results of operation on gastric and duodenal ulcers, and in order to show the ultimate results he limited his

paper to those cases in which the operation had been performed more than two years ago. There were 26 cases of chronic duodenal ulcer, and of these 21 were men. The ultimate results in all the cases, so far at least as the operation itself was concerned, were extremely good, and in all the amelioration of symptoms was very great.

The National Insurance Act.

THE National Insurance Act comes into force on Monday next, although most of the benefits promised under it do not become effective for another six months. At this important moment it seems to be admitted that the intricacies and impediments which beset the path of administration are causing much trouble to the Commissioners, and that the office of the National Insurance Commission is finding the strain almost greater than it can bear. It does not surprise us that this has happened, for a year ago we began to point out what would be the result of hurrying the Bill through Parliament, but the measure is now an Act, and the Commissioners must put their house in order and administer it for the public good, being ready, we suppose, if some of the problems before them prove insoluble, to ask the Government for amendments that will provide practical issues.

The great difficulty, overshadowing all others, is that the Chancellor of the Exchequer has as yet come to no understanding with the medical profession, whose cordial coöperation, as he has repeated time after time, he earnestly desires. A National Health Insurance Act, which cannot provide the medical benefits which it proposes to insure, is obviously condemned, and it is idle to hope that matters will be helped very much by the letter from the Chancellor of the Exchequer to a medical correspondent, which has been issued to the press, and which we print in another column. For Mr. LLOYD GEORGE in this letter allows that two of the demands included in the irreducible minimum put forward by the British Medical Association—namely, the £2 per week income limit and the 8*s.* 6*d.* rate of remuneration apart from drugs and extras—are not and, indeed, will not be provided for, while he further considers that the other points, pressed upon him by the medical profession, have been substantially granted. We need not repeat again the obvious grounds for our belief that in many respects the other claims of the medical profession have not received real consideration. At the present moment the significant thing is that the Government cannot give what the British Medical Association says it must have, and that a large majority of the medical profession are resolute in backing the Association. The constituencies of the Association have to decide between now and July 19th, the date of the annual meeting of the Representative Body at Liverpool, what course they mean to pursue, and their responsibility is a heavy one. The time is short, and definite information is lacking upon vital points, a position which need not have arisen if the reasonable delay for which we have pleaded persistently from the beginning had been granted. Those in whose hands the decision lies have already before them the long report of the Council of the Association upon the action taken since February by the State Sickness Insurance Committee and upon the present position and future policy of the Association. We summarised briefly last week the course of the negotiations which have taken place during that time between the Commissioners and the Association; and the Council of the Association, reviewing the whole situation, has expressed its opinion that no material concession has been made by the Chancellor since the last Representative meeting. The Council accordingly submits two alternative sets of recommendations—one with a view to breaking off negotiations and acting accordingly, the other for the purpose of continuing negotiations. If negotiations are continued the Association will accept Mr. LLOYD GEORGE'S invitation, published in THE LANCET last week, to send representatives to meet the Commissioners, with authority to arrive at a provisional agreement. A State Sickness Insurance Committee will be appointed to negotiate with the Commissioners. They will ascertain to what extent the demands of the Association are likely to be met, and will report on the whole situation as soon as possible to a Special Representative meeting of the Association. If negotiations are broken off all members of the British Medical Association will be called upon to withdraw from any position they may now have upon advisory commitees and to refrain from accepting any post under the Act. This is the issue before the forthcoming meeting of the Representative Body.

The course that is taken must largely depend upon the amount of information which reaches the Representative Body in time to be used during the discussion that will ensue upon the Chancellor's definite refusal to grant the principle of a maximum wage-limit or the capitation fee of 8*s.* 6*d.* Elsewhere we print the proceedings at a meeting held last week by the members of the National Medical Union, and these show very clearly which of the two courses that section of the profession desires to adopt. Its forward policy is exactly in accordance with that which it has pursued since the Union was founded in the stormy times of last December. The National Medical Union declares that the position has not changed since last February, and consequently it reaffirms its belief that further negotiations are useless and dangerous, and calls upon the Association to end them. It is to be hoped that, by the time the meeting of Representatives is held, not only will a complete return of the numbers of the medical men who have supported the second form of undertaking issued by the Association be forthcoming, but also that Sir WILLIAM PLENDER'S actuarial report on medical remuneration in selected areas will be available for criticism and consideration. Too much stress must not be laid upon figures and deductions based upon a brief and limited inquiry into medical remuneration, which is notoriously a complex and unsystematised affair, but such an authority on his subject as Sir WILLIAM PLENDER can scarcely fail to supply some valuable information within the limited scope of his inquiry.

Annotations.

"Ne quid nimis."

ELECTION OF MEMBERS OF COUNCIL AT THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE recent election at the Royal College of Surgeons of England, the results of which we record on p. 126, was by no means so exciting as some previous elections. No great question is now disturbing the College, and the election depended more on personal matters than on anything else. As might have been expected, two of the retiring members, Sir Frederic Eve and Sir Anthony Bowlby, headed the poll; each of these represented a large medical school and had done good work for the College. The third place was gained by Mr. D'Arcy Power, who also is on the staff of a large school, and while that fact is in a great measure responsible for his success, both his scientific work and his well-known labours in the field of international congresses made him a strong candidate. We are glad to see him on the Council, as he will certainly be an acquisition to that body. The battle for the fourth place was fought between the two candidates representing provincial hospitals, Mr. Gilbert Barling, of Birmingham, and Sir B. G. A. Moynihan, of Leeds. The voting was very close, for only seven votes separated them, and, in fact, if it had not been for the plumpers Mr. Barling would have had more votes than Sir Berkeley Moynihan. Altogether the plumping votes formed an interesting feature of the election, for the candidate who received the largest number of votes received only three plumpers, while the two candidates who stood at the bottom of the poll received the most plumpers—namely, 49 and 45. We have always objected to the use of plumping votes, and this election shows clearly that they may be of very little value to the candidate in whose favour they are cast. Once more the number of Fellows voting in person was very small, but it has remained fairly constant for the last few years, and it cannot be expected that it will ever undergo much increase while the rules for voting remain the same.

DISTANT LYMPHANGITIS IN APPENDICITIS.

IN *La Presse Médicale d'Egypte* of May 15th M. X. Delore and M. J. F. Martin, of Lyons, have reported two cases of a rare complication of appendicitis—distant lymphangitis. A boy, aged 13 years, was admitted into hospital on July 11th, 1911, the fourth day of an attack of abdominal pain and vomiting, in which the temperature rose to 102·2° F. Castor-oil had been administered without relief. On admission the temperature was 99·8°, the vomiting had almost ceased, but he was constipated and the tongue was furred. The abdomen was tense and painful in general, and on the right side was tender and more resistant than in other parts. As the patient did not improve the abdomen was opened by Roux's incision on July 19th. The parietal peritoneum was thickened and adherent, and was separated with difficulty from the cæcum. The cæcum also was thickened and everywhere adherent, which rendered search for the appendix so dangerous that it was abandoned. During the manipulations a drop of pus appeared on the external surface of the cæcum. A drain was inserted and the incision was closed. The general condition much improved, but the temperature continued to oscillate between 99·5° and 102·2° and there was a good deal of suppuration. On Sept. 6th an abscess of the size of a walnut appeared at the umbilicus. It elevated the umbilical cicatrix and extended downwards. On incision it yielded a teaspoonful of thick pus without particularly disagreeable odour. The pus was examined for the tubercle bacillus, but with negative result. On the 13th a small subcutaneous abscess appeared below the umbilicus and another in the left groin. A good deal of pus was discharged from the laparotomy wound, the abdomen was rigid and painful, and the patient appeared to be in danger. It was therefore decided to remove the appendix. Median laparotomy was performed. The abdominal wall was much thickened, looked lardaceous, and creaked under the knife. The intestines were adherent to it and to one another in the right iliac region. On separating the adhesions a long appendix, adherent on all sides, perforated at the end, and presenting yellow fungosities, was found and removed. The subcutaneous abscesses were incised. Recovery was uninterrupted. In the second case a boy, aged 8 years, had a slight attack of appendicitis. A mass in the right iliac fossa and a painful and tender lymphatic gland in the right groin were found. To relieve the pain the boy kept the thigh flexed. Operation showed that the appendix was adherent, by means of false membranes, to the abdominal wall. Its end was perforated and was surrounded by a mass of fungosities. Good recovery followed and the lymphadenitis rapidly disappeared. In both cases the appendix was carefully examined microscopically for tuberculosis with negative result. For the production of such distant effects plastic peritonitis producing adhesions to the abdominal wall is necessary. The new vessels formed produce continuity of the primary focus with the subcutaneous connective tissue of the abdominal wall. The intermediate subperitoneum and abdominal muscles are always involved in the inflammation. The tissues are lardaceous and creak under the knife. In the abdominal wall the infection may spread by the lymphatics and involve the glands. The treatment is appendicectomy and incision of the secondary abscesses. On thus removing the primary cause the suppuration ceases and the adenitis subsides.

ANTIVIVISECTION AND CHARACTER.

Dr. W. W. Keen's "Influence of Antivivisection on Character" is an interesting contribution to the history of fanaticism. It is curious to reflect that the depths of savagery, latent in the human heart, should be stirred by the cry of philanthropy. "Arch-Fiend," write certain feminine angels of Los Angeles, addressing this surgeon and teacher of world-wide reputation, "I read with horror you (*sic*) article ..... on vivsection (*sic*). I hope your mother if she is living will die in the most terrible torture, and if she is dead that her soul will never know rest for having given life to such a vile monster as you is the nightly prayer of a dozen women who indited this." The letter, typewritten, undated, and unsigned, but certainly posted at the Californian town of the angelic name, is reproduced in facsimile in Dr. Keen's interesting pamphlet, and is not likely to have been a hoax, since some five other monstrous letters are cited by Dr. Keen, all of which are duly signed. An honest and logical Jain would tell the writers of such letters that they must not abuse "vivisectionists" so long as they themselves eat steaks cut from the carcasses of animals killed amid the unimaginable horrors of old-fashioned slaughter-houses. Our readers might direct their attention to Dr. Keen's list of some 23 "Achievements of the Friends of Research." To his enumeration he might, indeed, have added the late Lord Lister's wonderful experiments on the living animal undertaken when he was working at the use of the catgut ligature. Records of many of these and similar

experiments now lie in the library of the Royal College of Surgeons of England in their unpublished MS. form. In all these valuable researches Lister seems always to have been sparing of life. One calf sufficed to establish one fact, and so on. Such careful single experiments are probably akin to a myriad similar ones successfully achieved since the days of Hippocrates. Indeed, medical historians have never examined into the question of the use of vivisection in the ages when the world did not inquire so closely into the doings of scientific investigation.

PREVENTION OF THE DEVELOPMENT OF PERNICIOUS MALARIA.

IN a preliminary report on "a method for preventing the development of pernicious malaria," read before the Panama Canal Zone Medical Association some months ago, and published in the *Journal of Tropical Medicine and Hygiene*, by permission of Colonel W. C. Gorgas, chief sanitary officer of the Isthmian Canal Commission, Dr. W. James, physician to the Ancon Hospital, describes the measures which he has been led to adopt in dealing with such cases. Although there are many varieties of pernicious malaria they may all be regarded as having a common etiology depending upon the localisation of the parasites or their toxic products in certain organs, or upon the effect of an overwhelming production of toxin on the human organism. Pernicious symptoms seldom develop unless prior to their manifestation there has been a notable increase of the parasites in the peripheral blood. If the pernicious symptoms become well established recovery is rare, for the reason that the older parasites which block the capillaries and the liberation of toxin from the sporulating forms are not at all amenable to the action of quinine. Following the teachings of recognised authorities upon malaria Dr. James has in the past tried to prevent "perniciousness" by the early administration of quinine, hypodermically or by the mouth, in initial doses of 20 to 30 grains every four hours until the paroxysm passed. He has used intravenous injections only when these were urgently needed. Not infrequently, however, pernicious symptoms developed, and notwithstanding treatment death supervened. This want of success Dr. James attributed to failure on the part of the human organism to absorb properly, and so transmit to the bloodstream the necessary amount of quinine required to inhibit sufficiently the growth of the parasites. After reading some observations published in *Paludism* (for January, 1911) by Captain A. C. MacGilchrist, I.M.S., on "Quinine Salts: their Solubility and Absorbability," Dr. James became convinced that his lack of success had been due to improper administration of that drug, and he forthwith commenced to administer subcutaneously quinine dissolved in five to ten ounces of normal saline solution, beginning with smaller dilutions than 1 in 150 and working up to that strength, and at the same time using large doses. He has since, with some success, used this method in 12 cases as a preventive measure in intense infections, giving 30 to 45 grains as an initial dose, and repeating the doses, in equal amounts or less, at intervals of four to eight hours according to the severity of the infection. Dr. James maintains that his method is both logical and practical. It is logical because in these infections very large doses of quinine are needed to inhibit successfully the growth of the parasites, and the dilution insures prompt absorption; the infusion is rapidly taken up, most of it in two hours. It is practical, for it amounts to no more than the hypodermoclysis which is so often a part of surgical routine. A little cocaine solution injected into the skin at the proposed site of the hypodermoclysis will effectually prevent any subsequent pain. It is also important to bear in mind that normal salt solution, so administered, is beneficial in any toxic condition. The form of quinine used in these subcutaneous injections was a French preparation of the bi-hydrochloride. Dr. James admits that the number of cases on which this new method has been employed is too small to permit of definite conclusions being drawn, but he looks with great hope to the future of this treatment for preventing the development of pernicious malaria. He proposes in a later communication to present a large number of cases of severe infection treated by this method, and to compare the results so obtained with those produced in cases treated on the old lines. He further hopes to be able to count accurately, after the method of Sir Ronald Ross and Dr. D. Thomson, the exact ratio between the number of infected erythrocytes per cubic millimetre and the degree of the pernicious symptoms in the negroes in the Panama Canal zone who are relatively immune against malaria, and in Americans and Europeans who possess a high degree of susceptibility to the toxins of malaria.

PROGRAMME OF THE INTERNATIONAL CONGRESS OF HYGIENE AT WASHINGTON.

SOMETHING like a definite programme, though it is only described as the seventh edition of the preliminary announcement, has now been issued in regard to the Washington Congress. This will be the Fifteenth International Congress of Hygiene and Demography, and acceptances to attend have been received from 31 different countries. The Congress meets from Sept. 23rd to 28th next, but the Health Exhibition connected with the Congress remains open from Sept. 16th to Oct. 4th. The exhibition is divided into groups that bear a close analogy to the sections of the Congress. First we have demography, or vital statistics; secondly, growth, nutrition, food. The third group is allotted to infancy and childhood, school hygiene, and kindred subjects; the fourth to the physiology of exercise; the fifth to the great housing question; the sixth to industrial or trade hygiene; the seventh to communicable diseases; the eighth to State and municipal hygiene; the ninth to nursing, life-saving or rescue work; and the tenth to the hygiene of traffic and transportation. The eleventh group includes military, naval, and tropical hygiene; while the last and twelfth group deals with sex hygiene. In regard to the Congress, the subjects for each morning and afternoon meeting are now announced in respect to the First or Bacteriological Section; the Fifth or Infectious Diseases Section; the Sixth or State and Municipal Hygiene Section; and the Eighth or Military, Naval, and Colonial Hygiene Section. The other sections are not so far advanced in their organisation, but they publish long lists of papers to be read, without, however, indicating on what day they will be taken. Still, it is quite obvious there are far too many communications. The title of a good many of these papers is followed by the announcement, "twenty minutes"; but who will pay any attention to this warning? It requires an iron chairman to enforce such a rule, and generally the chairman is inexperienced and mainly anxious not to offend anyone. But even if the 20-minute limit is enforced, from five to eight papers are announced for every sitting. Six papers of 20 minutes make more than two hours without allowing a moment for interruptions, questions, discussion, and translation. What is the good of crossing the Atlantic to hear from five to eight papers read each morning and each afternoon? If they were well read there might be some interest in it. But the writer of

a good paper is not necessarily a good reader, gifted with a powerful voice, and trained in all the arts of elocution. He too often mumbles incomprehensibly, and we should be much better informed and more edified if we could quietly read the paper at home when we felt so disposed. It is absurd to go to a congress to hear papers read—for the most part badly read—and to have no opportunity for discussion. Its adherents go to a great international congress to meet colleagues of all countries, to make acquaintances they could not otherwise hope to see, and to interchange ideas. So far as the proceedings of the congress are concerned, the papers are often not of the highest importance. What is of real value and cannot possibly be obtained except at a congress is the discussion. This was well pointed out by proceedings at the recent Congress held at Rome on tuberculosis. Then without a discussion, and without translations of the important papers, many members of a congress find that it is not worth while voting on the great questions, and what business will the congress have done if it does not carry resolutions? As hygiene is more especially a question of legislation the Governments are waiting for a pronouncement from Washington so as to see how far opinion is ripening in the direction of the various sanitary measures that need a legal sanction. In the Military Hygiene Section a good many speeches are limited to 15 minutes in the English programme, but though the same papers are announced in the French and German programmes no mention is made of the limitation to 15 minutes. In the Bacteriological Section the 20-minute limit is mentioned in the French programme, only no one has had the courage to translate it into French and the words appear in English. In these circumstances, if the French- and German-speaking delegates read longer papers they cannot be blamed. Again, if a paper is really important it ought not to be too short. We must have fewer papers at these meetings.

THE TREATMENT OF PULMONARY TUBERCULOSIS BY THE INDUCTION OF ARTIFICIAL PNEUMOTHORAX.

ALTHOUGH the method of treatment of certain cases of pulmonary tuberculosis by the induction of pneumothorax with a view to immobilisation of the lung has now been before the profession for many years, it is only recently that interest has been taken in the matter in this country, largely owing to the interesting paper published in our columns by Dr. Claude Lillingston.[1] Reports upon the subject continue to appear in various scientific periodicals, notably during the last few months. We may refer to those in *La Presse Médicale* of June 12th, which contains two interesting communications on this subject. The first is a paper read to a Brussels medical society by M. Guvaerd, who bases his statements on a study of 16 cases subjected to treatment by injections of nitrogen into the pleura. Of these, ten have been under observation for six months, long enough to justify some conclusions as to results. In four of the ten the pleura was so widely adherent that it was impossible to induce pneumothorax; in one case there were adhesions which limited the pneumothorax, yet improvement followed and was maintained. A complete pneumothorax was achieved in five cases; twice an apparently lasting cure was effected, in two others the outlook is rendered doubtful by the presence of the disease in the opposite lung, while in the fifth case, an acute one with intestinal lesions, the result was entirely negative. In order to avoid the danger of gas embolism, M. Guvaerd uses oxygen for the first few injections, replacing this by nitrogen as soon as the pleura has become moderately distended. The second contribution is a paper read in Marseilles by M. Billon and M. Eiglier, who have treated 16 patients. They exclude three of these from a consideration of the benefits received on the ground that in each case only one injection has as yet been given. In the others they have noted a remarkable diminution in the cough and expectoration, a reduction of fever, and an increase of weight. It is to be remembered, as these writers and also M. Guvaerd insist, that cases of bilateral pulmonary tuberculosis should be excluded, and also that it is futile to attempt the induction of pneumothorax in the presence of extensive pleural adhesions. So far, the cases to which this method has been applied have been in the second or third stage of the disease. Marked cachexia, or the presence of advanced tuberculosis of the bowel or other organs, is a contra-indication. On the other hand, success is claimed in cases of recurrent hæmoptysis. The various major and minor accidents which have been reported become far less likely, according to M. Guvaerd, as the operator's technique improves with practice. It should be noted that M. Billon and M. Eiglier regard the injection of air as being equally efficacious with that of nitrogen. In the *American Journal of the Medical Sciences* for April Dr. Mary E. Lapham, physician to Highlands Camp Sanatorium, has published several encouraging results from the treatment. She has obtained striking results in the cases in which she employed the method. The indications for the operation were as follows: Inability to arrest the process, 15 cases; inability to maintain a previous recovery, 3 cases; impatience to return to work, 2 cases; "theoretical grounds," 1 case; and "referred expressly for the treatment," 1 case. All of the 15 cases first mentioned were advanced and otherwise hopeless, yet among these there were only 3 deaths and 1 failure. One death was due to hæmorrhage before the benefit of the method could be obtained. The second death was due to a violent exacerbation of intestinal tuberculosis, and in the case of the third the patient left the sanatorium too soon and was not properly cared for. Of the three patients unable previously to maintain a recovery, one has worked for a year without loss of a day and the other two are in an equally favourable condition. All the other patients are doing well, and in none could recovery have otherwise been much expected. The following is an example. A woman, aged 40 years, had a cough with abundant expectoration loaded with tubercle bacilli. Eighteen months' rest in bed in the open air had failed to arrest the disease or to check persistent hæmorrhages. Over the whole of the left lung there were dulness and altered breath sounds, and at the level of the second intercostal space there was a cavity. The right lung was normal. In November, 1910, injections of nitrogen into the pleural cavity were begun. In December tubercle bacilli had disappeared from the sputum. In May, 1911, the injections were discontinued and the lung was allowed to expand. At the time of the report there was no cough and no sputum. Over the left apex there was dulness with irregular expansion, but over the rest of the lung there was normal resonance with vesicular breath sounds.

[1] THE LANCET, July 15th, 1911, p. 145.

SCHOOL INSPECTION IN CANADA.

IN No. 4 of the official publications issued by the Medical Faculty of the Queen's University, Ontario, Canada, appears an interesting article by Dr. A. P. Knight on the organisation of the medical inspection of schools. This procedure has been adopted in but a few cities in Ontario, and only during the past year or two. The statistics for Montreal for 1910 show that of the children examined 53 per cent. were "ill with some form of disease," 2 per cent.

had adenoids, 37 per cent. suffered from decayed teeth, 4 per cent. from vermin, 4 per cent. from some contagious disease, while 15 per cent. were unvaccinated. The figures for Toronto give 70 to 90 per cent. with decayed teeth and 5 to 20 per cent. with some form of eye disease. Dr. Knight applies this percentage to the whole school population of Ontario and also that of Bradford (England) on the ground that the physical conditions in Bradford are "somewhat the same as our own." In order to get the medical inspection started Dr. Knight suggests a propaganda carried on by departmental directors "through every channel he can command—bulletins, magazine and newspaper articles, lectures, farmers' and teachers' instructions." The organisation suggested for Canada is that every municipality should have a medical officer of schools devoting all his time to the work. It is estimated that this would involve an outlay of $3000 every year, but as this expense cannot be met some other scheme is suggested to lead up to the higher measure. In five places named a school nurse is employed, and it is suggested that the teachers should be trained to make medical examinations, presumably of an elementary kind. For this reason it is suggested that lectures on the lines of those given by Dr. G. A. Auden, school medical officer, Birmingham, should be made part of the teacher's curriculum, and that, in addition to these lectures, clinical demonstrations of adenoids, eye-strain, defective breathing, and so forth, should be given to all young teachers. It appears that, just as in this country, the urgency of treatment following examination is felt, particularly with regard to defects of the teeth. Dr. Knight, while believing that some provision could be made for treating the teeth of indigent city children, thinks that as regards treatment of country children this would be very difficult, "so difficult that I see no solution of it"; but it may be suggested that Canada would appear to be particularly suitable for the use of the travelling clinic, something which could be packed up on a wagon or caravan and toured round outlying districts. Such a travelling clinic might quite well undertake other work as well as that of dental treatment.

FASTING IN DIABETES.

AT the meeting of the British Medical Association held in London in July, 1910, a paper was read by Dr. G. Guelpa, of Paris, on "Starvation and Purgation in the Treatment of Disease," of which we published a short *résumé* in our report of the Medical Section of the Association meeting. Dr. Guelpa stated that his treatment, which consists of periods of abstinence from food extending up to three days, or occasionally longer, combined with purgation, had given striking results in certain chronic diseases, notably in diabetes. We have now received a copy of his book[1] upon the subject which has been translated into English by Dr. F. S. Arnold, who states in his introduction that apart from a few letters published in THE LANCET on the subject, Dr. Guelpa's work has not received much recognition in this country. He therefore asked permission to translate the book, which he has done very successfully. He has also written a clear introductory note in which the general principles of the method are outlined. Dr. Guelpa came to the conclusion that the important factor in many chronic diseases was a condition of auto-intoxication, and therefore he evolved his treatment with a view of obtaining what he calls "disintoxication." Briefly stated, it consists in withholding food and giving a daily purge, a combination which he terms abstinence-purgation treatment. He affirms that it can be carried out for three days without any hardship or discomfort other than some headache and lassitude on the first day, and that these symptoms are much lessened if the purgation be sufficiently active and free. He advises sulphate of soda in dilute solution or a whole bottle of Hunyadi Janos water as the best form of purgative, except in cases of kidney disease, in which castor oil is preferable. No food of any kind is allowed during the period of abstinence, but the patient is permitted to drink as freely as desired of water, weak tea without milk, toast water, and fruit infusions. He states that the treatment results, as might be expected, in loss of weight, lowering of arterial pressure, and lessening, almost to disappearance, of the bacterial flora of the intestine, but that in addition there is an increase in the number of red blood corpuscles and in their hæmoglobin content, and that the white corpuscles are also increased in number. Dr. Guelpa gives records in his book of considerable numbers of cases in which he has tried his abstinence-purgation treatment with marked success. He writes modestly but with conviction, and gives sufficient details of his cases and methods to be intelligible and interesting. It is more particularly in glycosuria and diabetes not due to organic lesions that he claims the greatest success for his method. In a large percentage of cases the first period of three days' abstinence with purgation removes sugar completely from the urine, though it returns when food is again taken, but in less percentage. After a second period of treatment it again disappears and returns in diminished quantity. Dr. Guelpa maintains that after a third fast the patient, if he lives abstemiously and undergoes a short fast at about monthly intervals, can keep his sugar at a very low amount, or even cause it to disappear completely. So successful is this treatment, according to its author, that even cases of diabetic gangrene can be arrested by its use. Dr. Arnold, who states in his introduction that he has verified many of Dr. Guelpa's claims, has performed a useful service in presenting this work *in extenso* in English, and we shall await further experience of this method with interest.

[1] Auto-intoxication and Disintoxication, an Account of a New Fasting Treatment in Diabetes and other Chronic Diseases, by Dr. G. Guelpa (Paris). Translated by F. S. Arnold, B.A., M.B., B.Ch. Oxon.; with an introduction by the translator and a chapter on the Use of the Method in the Treatment of Morphine Addiction by Oscar Jennings, M.D. (Paris). London: Rebman Limited. 1912. Pp. 152. Price 5s. net.

THE BERLIN CONGRESS OF THE ROYAL INSTITUTE OF PUBLIC HEALTH.

IN November of last year we announced that the Royal Institute of Public Health had been invited by the Lord Mayor of Berlin to hold its 1912 Congress in that city, and that the invitation had been accepted. The Congress will take place from July 25th to 28th, under the presidency of Earl Beauchamp, President of the Institute; and the final programme now lies before us. The names of the Berlin Committee of Arrangements occupy four pages, and include many illustrious in our profession. Besides the papers to be read by British sanitarians in the five sections, in which, as stated in THE LANCET of May 25th, the Congress will be divided, there will be many by German and Austrian medical men of eminence, including such well-known names as those of Professor Conradi, of Halle; Professor Dunbar, Professor E. Fraenkel, Dr. Schottmüller, and Professor Voigt, of Hamburg; Professor Emmerich, Professor Dieudonné, and Dr. Seiffert, of Munich; Professor von Pirquet, of Vienna; Professor Martini, of Wilhelmshaven; and Professor Seligmann, Professor Brieger, Dr. Wolff-Eisner, Professor Friedeberger, Professor Sticker, Professor Blumenthal, Professor Heymann, Dr. Citron, and Professor C. von Fraenkel, of Berlin. The reception room will open in the Imperial House of Lords (*Herren Haus*) at 10 A.M. on July 24th for the registration of members. At 8 P.M. a supper will be served at the restaurant in the Exhibition Park and will be followed by a reception. The inaugural meeting of the Congress will take place in the House of Lords at 10 A.M. on July 25th, when the President

will deliver his address. Sectional meetings will be held from 11 A.M. to 3 P.M., and visits to various institutions will follow until 7 P.M. At 8 P.M. a banquet will be given at the Rathaus to the members of the Congress by the municipality of Berlin. On the 26th sectional meetings from 9 A.M. until 3 P.M. will be followed until 6.30 P.M. by visits to various institutions. At 8.15 P.M. there will be a reception to meet the members of the English colony in Berlin at the Rennbahn Grunewald restaurant. On the 27th, after the sectional meetings in the morning and visits to the institutions in the afternoon, the Congress dinner, to which ladies are invited, will take place at 7.30 P.M. in the restaurant of the Zoological Gardens. On Sunday, July 28th, there will be a special service in St. George's Church, followed by a steamer excursion to Potsdam and the Royal palaces, with a luncheon at Bannsee and tea in the Forest Restaurant. Among the institutions to be visited are the sanatoriums of the National Insurance Institute for Berlin at Beelitz, the Imperial Board of Health, the municipal insurance offices, the Kaiserin Friedrich Institute for Advanced Medical Studies, the Kaiser Wilhelm Academy for Army Medical Instruction, the Robert Koch Royal Institute for Infectious Diseases, the Royal Charité, Rudolf Virchow and Charlottenburg municipal hospitals, and the Royal Institute of Hygiene of the University. Special arrangements have also been made for drives round Berlin, receptions, and other social functions. It is desirable that members of the Congress should take with them their academic, municipal, or other robes. The importance from a scientific point of view of this opportunity for comparing the sanitary methods of two countries so advanced in sanitary practice as Great Britain and Germany can hardly be over-estimated. Not less important is the evidence of the influence of science in advancing the comity of nations afforded by this invitation extended to a purely national body of one country to hold its annual meeting in the confines of another.

THE SOCIETY OF COMPARATIVE PATHOLOGY.

THIS society (La Société de Pathologie Comparée) is organising an International Congress of Comparative Pathology to be held in Paris in October of this year, and the French officials are desirous to obtain the active coöperation and participation of English pathologists and bacteriologists in this Congress. The subjects for discussion will range over the whole field of pathology and will include veterinary and plant pathology. Among the problems already entered for discussion are: Tuberculosis (pathogenesis), human and avian diphtheria, cancer, variola and vaccinia, parasites common to man and animals, hydrophobia, comparative study of the cirrhoses, vegetable pathology, &c. The council of the Pathological Section of the Royal Society of Medicine recommends this Congress to the members of the section for their support. All desirous of making communications at the Congress or of taking part in the discussions should communicate with the general secretary of the Congress, 42, Rue de Villejust, Paris.

THE trustees of the American Medicine Gold Medal Award announce that the medal for 1912 has been conferred upon Dr. William C. Gorgas, Ancon, Panama, as the American physician who in their judgment has performed the most conspicuous and noteworthy service in the domain of medicine during the past year.

Dr. Theodor Kocher, the great Swiss surgeon, who has recently celebrated the fortieth year of his tenure of the chair of surgery in the University of Berne, has presented the University with the sum of 200,000 francs for the purposes of research.

ASYLUM REPORTS.

County and City of Worcester Lunatic Asylum, Powick, (Annual Report for the Year ending March 31st, 1912).—At this asylum the average daily number resident was 1056. There were admitted 267 patients, and of these 104 were transferred from other asylums. A previous attack was noted in 20·9 per cent. of the direct admissions. Mr. G. M. P. Braine-Hartnell, the medical superintendent, notes that whereas in the report of the Commissioners issued in 1911 heredity is assigned as the cause in 25 per cent. of the admissions, it was only found in 9·8 per cent. of those admitted to this asylum during the year under review. Of the admitted 30 have been discharged recovered and 18 have died. 218 persons were discharged during the year, and of these 75 were discharged recovered, being a rate of 46 per cent. on the direct admissions. The deaths numbered 73, being a rate of 6·91 per cent. on the daily average number resident. The chief causes of death were heart disease in 24·7 per cent., phthisis in 20·6 per cent., senile decay 11 per cent., pneumonia 9·6 per cent., and general paralysis in 8·2 per cent. cases. Post-mortem examinations were made in 60 out of the 73 deaths.

Bucks County Lunatic Asylum at Stone (Annual Report for the Year 1911).—The average daily number on the registers during the year was 697. The total number of patients resident was the highest at the end of the year since the opening of the asylum. Dr. H. Kerr, the medical superintendent, points out that the increase in the number of Bucks patients during the past two years has been much above the average, so much so that the question of providing further accommodation for the insane of the county will probably have to be considered at no very distant date. The proportion of the insane to the population shows a fairly constant tendency to increase, having risen from 2·7 per 1000 in 1891 to 3·3 per 1000 in 1911. The number of the insane maintained in the asylum shows a disproportionate increase, having risen from 2·1 per 1000 in 1891 to 2·9 per 1000 in 1911. This increase appears to be partly due to the larger number of congenital and senile cases that are now taken to the asylum instead of being kept in the workhouse or at home. Many of these cases are only certified on being sent to the asylum, and they consequently swell the numbers of the certified insane. There is further an increasing accumulation of chronic cases. It is possible that if institutions for the feeble-minded are provided, some relief may be afforded. The admissions during the year numbered 198. Of those admitted, 22 were congenital cases, 3 suffered from epilepsy, and 12 from general paralysis. In 66 cases only was the prospect of recovery considered at all hopeful. Ninety-eight patients were discharged, of whom 69 had recovered. The deaths during the year numbered 77, giving a rate of 11 per cent. of the daily average number resident. Two male patients endeavoured to evade treatment; both, however, were taken back to the asylum within a few hours.

Kingseat Mental Hospital, Aberdeen (Annual Report for the Year 1911).—There were 560 persons under treatment at this hospital during the year. The admissions numbered 115, and of these 88 were certified as insane for the first time and 27 had suffered from one or more previous attacks. Of the direct admissions 73 had been ill for less than three months, 6 under 12 months, and 8 were congenital cases. It was ascertained that 33 were hereditarily predisposed to nervous or mental affections. A large number of cases of senile insanity were admitted. The increase in the admission of these cases appears to be general over Scotland, and has been attributed to the recognition by the public of the more satisfactory management of asylums which nowadays prevail. Dr. H. de Maine Alexander, the medical superintendent, is of opinion that a more likely explanation of the increased admission rate of these senile cases is that there are more old people living nowadays than there were 10–20 years ago. The discharges during the year numbered 61. The percentage of recoveries on the admissions was 36·5. The deaths numbered 39, giving a rate of 8·1 on the average number resident.

OBSERVATIONS ON THE NEURON.

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I.

THIS essay is partly concerned with an enunciation of the main known facts respecting the neuron, and partly with speculations in regard to it which I dare to hope may reflect some glimmerings of the truth.[1]

The essential elements of the nervous system are nerve cells or neurons. Their primary function is to generate and to conduct nerve-impulses. A neuron consists of a cell-body and one or more processes, and may thus be unipolar, bipolar, or multipolar. The cell-body (*perikaryon*), as distinguished from its processes, is generally referred to as the "nerve cell." I shall here speak of it as the *neurosome*.

There is no anatomical connexion between the adjacent processes of separate neurons: they are contiguous, but not continuous. Cajal, employing Golgi's method of staining, has shown that they all terminate in free extremities.

Of two neurons entering into mutual functional relation the one plays the part of actuator, while the other passively responds to it. (Fig. 1.) The former is provided with actuating points, which may be termed *neuro-mittors*, or, more briefly, *mittors*; the latter, with receptive organs capable of generating nerve-impulses, and these we may term *neuro-ceptors*, or simply *ceptors*. The interval between a neuro-mittor and its correlated neuro-ceptor constitutes a *synapse* or synaptic junction.

Each neurosome contains a nucleus and a nucleolus. A centrosome has not hitherto been discovered in mammalian neurons, although it is certainly present in the neurons of some of the invertebrates. This body is known to play an important part in cell division, and its apparent absence from mammalian neurons may help to explain the inability of these to multiply, and further raises the question whether those neurons, among the invertebrates, which contain a centrosome may not possess the power of multiplication.

The cytoplasm is permeated by a canalicular system which does not, however, communicate with the peri-neural lymphatic space, as some have supposed. It contains in its interstices nutriment, some of which is precipitated after death in the form of Nissl's granules (tigroid bodies). These granules are not found in short-axoned neurons. Fuchsinophile granules are present throughout the entire neuron; in the climbing fibrils of the cerebellum they are so close as almost to touch one another. Their function is not known. Altmann termed them *bioblasts*, Held, *neurosomes*, a term which, however, is more fittingly employed to designate the neuron-bodies as distinguished from their processes. Levi has shown that, in the case of the peripheral sensory neurons, these bioblasts increase in number and size during periods of activity.

The entire neuron, including its processes, is traversed by neuro-fibrils, which, as will be contended later, possibly constitute the strands along which nerve-impulses travel. The size of the neurosome varies greatly. In some neurons—e.g., the cerebellar "granule cells"—the diameter may not exceed 6μ; in others—e.g., the large pyramids of the cerebral cortex—it may attain to 70μ. While the size of the neurosome is doubtless largely dependent upon the length of the axon and the extent of its branches, some short-axoned neurons (e.g., the bipolars of the retina) possess voluminous neurosomes. The significance of this discrepancy is not known.

We shall perhaps best get an insight into the structure and function of neurons by studying those which enter into the peripheral reflex arcs. The simplest reflex arc consists of at least three kinds of neurons: (1) the sensory peripheral neuron (proto-neuron); (2) the intercalary neuron; and (3) the peripheral motor neuron terminating in voluntary muscle. (Fig. 2, lower portion.) In the case of the autonomic system supplying unstriped muscle-fibres and gland-cells, the peripheral efferent strands consist of at least two consecutive series of neurons, the pre-ganglionic and the post-ganglionic.

Excited by a stimulus at its peripheral extremity, the sensory peripheral neuron generates a nerve-impulse which, transmitted to its central extremity, excites an impulse in the intercalary neuron, and this in its turn excites an impulse in the peripheral motor neuron (or efferent autonomic strand). Thus the initial impulse is reflected back, as it were, towards the periphery, causing some modification in the activity of muscle-fibres (voluntary or involuntary) or of gland-cells.

1. *The Sensory Peripheral Neuron.*

This neuron merits a careful study. (Figs. 2, 3, and 4.) The neurosome is situated outside the central nervous system, within a ganglionic swelling (in the case of the spinal nerves, the posterior root ganglion). It has a single process which, after making several coils, receives a medullary sheath and a neurolemma, and while still within the ganglion divides into a peripheral and a central branch, each of which is furnished, like the parent stem, with its own medullary sheath and neurolemma. The peripheral branch is afferent and constitutes a sensory nerve-fibre, while the central efferent branch enters the central nervous system as an *exogenous fibre*, its neurolemma upon entrance there becoming so attenuated as barely to be discernible. Soon after entering the central nervous system this exogenous fibre bifurcates into a longer ascending and a shorter descending branch, each of which gives off at right angles a number of collaterals. Hence a single sensory neuron may be brought into functional relation with many different neurons within the system. The nature of this functional relation will be considered later. The length of these exogenous fibres varies considerably—some are short, others long. From every posterior spinal root some pass as far as the medulla; therefore, among the sensory neurons which send their peripheral axons down to the feet in man, there are some the exogenous axons of which reach to the medulla. Hence, in man such neurons attain a length of from five to six feet, and in the case of some of the larger animals the corresponding neurons must greatly exceed this limit!

The peripheral sensory neurons differ from every other species of neuron in that their receptive processes (sensory nerve-fibres) are indistinguishable in structure from axons, which in the case of all other neurons are always emissive in function.

The fifth, the seventh, the eighth, the ninth, and the tenth cranial nerves exhibit ganglionic swellings corresponding to the posterior root ganglia, and, like them, containing the neurosomes of peripheral sensory neurons. These and all other peripheral sensory neurons of the cerebral system are represented in Fig. 2, which I venture to hope may prove helpful to the student.

The largest swelling is the Gasserian ganglion, belonging to the fifth nerve. The diagram shows a single neurosome within this ganglion. Its central axon is seen to enter the pons and to divide into a short ascending and a long descending branch (thus forming part of the descending root of the fifth), from each of which collaterals are given off.

The sensory portion of the seventh (facial) nerve is known as the *pars intermedia*, the neurosomes being contained within the geniculate ganglion. Their centrally directed processes pass backwards and bifurcate in the usual way, the descending branches helping to form, with the corresponding processes of the sensory neurons of the ninth and tenth, the "solitary tract." The peripheral processes of the sensory neurons of the seventh nerve constitute the gustatory fibres of the chorda tympani.

The eighth nerve consists of two parts—the cochlear (acoustic) and the vestibular. The neurosomes in the former are contained within the cochlear (spiral) ganglion, and in the latter are distributed in three ganglia, of which the largest is known as Scarpa's ganglion. The diagram (Fig. 2) shows the bifurcation of the central branches of the cochlear and vestibular neurons in the ventral portion of the brain stem. Observe that these neurons are bipolar, resembling in this respect the peripheral sensory neurons of certain fishes and those of man in the early embryonic period. In him certain of the peripheral sensory neurons remain bipolar throughout life. Such are those of the auditory, the olfactory, and the visual systems; all the other peripheral sensory neurons of man become in the course of development

[1] For a detailed account of our present knowledge of the neuron the reader is referred to S. Ramón Cajal's classical work on the Histology of the Nervous System of Man and the Vertebrates, of which there is an admirable French translation by Dr. L. Azoulay. This work contains many hundreds of beautifully executed drawings.

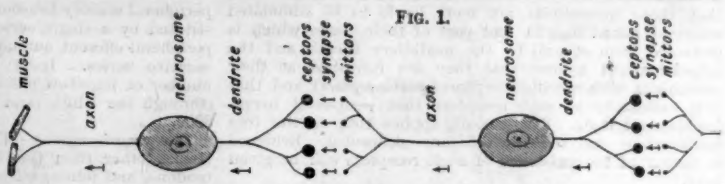
unipolar by the union, for a short distance after their origin, of their two processes. (Fig. 5.)

The ganglia of the ninth (glosso-pharyngeal) and the tenth (vagus) are well marked. The central processes of their neurosomes pass, like those of the geniculate ganglion, to the dorsal part of the brain-stem, and by their bifurcation form tracts which lie in the ventral portion of the solitary tract.

The central branches from the ganglia of the fifth, seventh, ninth, and tenth nerves grow into the brain-stem, just as the dorsal roots grow into the spinal cord from the spinal ganglia.

Two other peripheral sensory systems remain for consideration — the olfactory and the visual. In each of these not only are the sensory peripheral neurons bipolar in man, as already noticed, but they represent a still more primitive condition in that they are wholly situated at the periphery, an arrangement which obtains for all the peripheral sensory neurons in some of the invertebrates (e.g., earthworm).

FIG. 1.



Showing the manner in which one neuron actuates another—i.e., by the action of mittors upon ceptors.

FIG. 2.

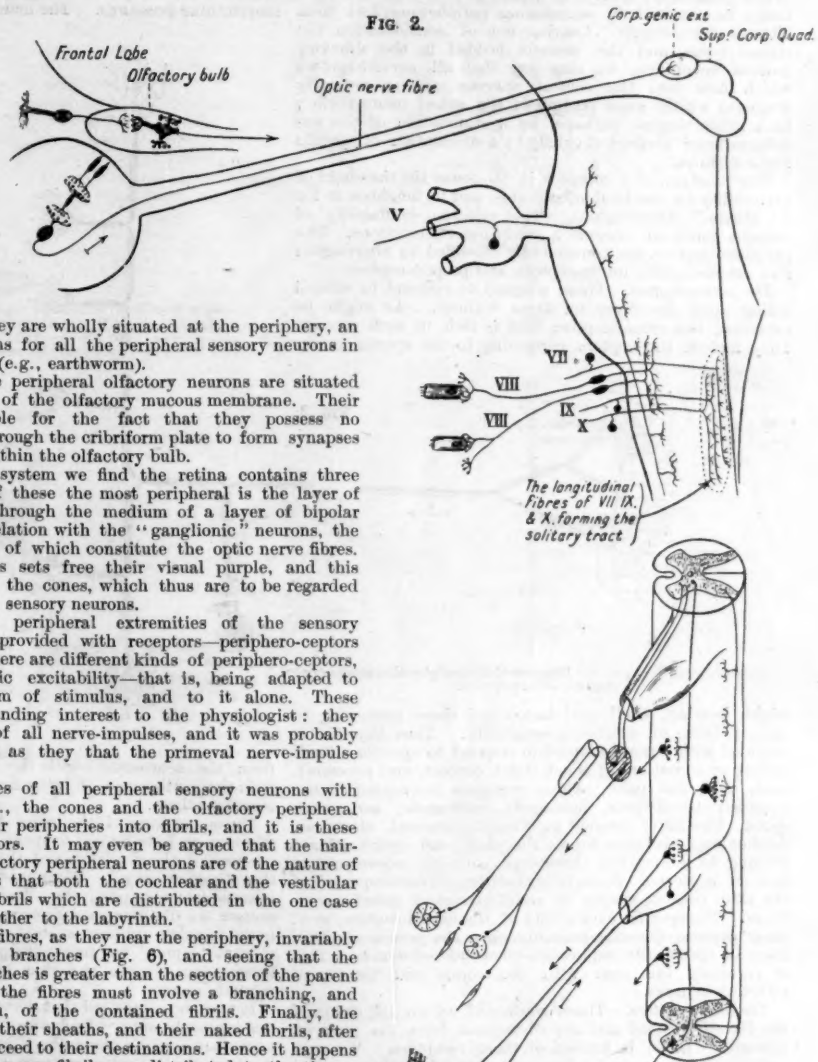


Diagram of the peripheral sensory neurons of the cranial and the spinal nerves. The spinal reflex arcs pertaining both to the voluntary muscles and the autonomic system are also shown in the lower portion of the figure. The efferent autonomic strand is seen to consist of pre-ganglionic fibres passing from the grey matter of the spinal cord to a sympathetic ganglion, and of post-ganglionic fibres arising in the latter.

The neurosomes of the peripheral olfactory neurons are situated among the epithelial cells of the olfactory mucous membrane. Their central fibres, remarkable for the fact that they possess no medullary sheath, pass through the cribriform plate to form synapses with neurons contained within the olfactory bulb.

Finally, in the visual system we find the retina contains three layers of neurons, and of these the most peripheral is the layer of rods and cones. This, through the medium of a layer of bipolar neurons, is brought into relation with the "ganglionic" neurons, the central medullated axons of which constitute the optic nerve fibres. Light acting on the rods sets free their visual purple, and this starts a nerve-impulse in the cones, which thus are to be regarded as representing peripheral sensory neurons.

Periphero-ceptors.—The peripheral extremities of the sensory peripheral neurons are provided with receptors—periphero-ceptors as we may call them. There are different kinds of periphero-ceptors, each exhibiting a specific excitability—that is, being adapted to respond to a special form of stimulus, and to it alone. These receptors are of commanding interest to the physiologist: they are the primary source of all nerve-impulses, and it was probably in some such structures as they that the primeval nerve-impulse originated.

The peripheral processes of all peripheral sensory neurons with very few exceptions (e.g., the cones and the olfactory peripheral neurons) break up at their peripheries into fibrils, and it is these fibrils which carry receptors. It may even be argued that the hair-like processes of the olfactory peripheral neurons are of the nature of neuro-fibrils. Certain it is that both the cochlear and the vestibular nerve-fibres split up into fibrils which are distributed in the one case to the cochlea and in the other to the labyrinth.

Ordinary sensory nerve-fibres, as they near the periphery, invariably break into two or more branches (Fig. 6), and seeing that the united section of the branches is greater than the section of the parent stem, this branching of the fibres must involve a branching, and consequent multiplication, of the contained fibrils. Finally, the medullated branches lose their sheaths, and their naked fibrils, after yet further branching, proceed to their destinations. Hence it happens that many more sensory neuro-fibrils are distributed to the tissues than enter the central nervous system. These naked neuro-fibrils terminate in one of two ways—either in ramifications among the cells of non-nervous tissues (Fig. 6), or in ramifications within a protective capsule so as to form an "end-organ" of appreciable size (Fig. 7). This latter arrangement is doubtless for the purpose of facilitating the action of the stimulus, as in the case of the Pacinian corpuscles, the object of which is probably to magnify the effect of pressure. The ultimate fibrils of a single fibre (axon) often unite among themselves, forming a network. Such a union never takes place between the fibrils of neighbouring fibres. While it is probable

that these neurofibrils are more liable to be stimulated wherever naked than in that part of their course which is protected from stimuli by the medullary sheath and the neurolemma, I assume that they are furnished at their extremities with specific receptors (*fibrilo-ceptors*), and that it is essentially in such receptors that peripheral nerve-impulses originate. This remark applies both to the free ramifications and those which are encapsuled. Evidence in favour of the existence of such receptors will be given later.

All the nerve-impulses which normally pour into the central nervous system originate, not in the course of the afferent nerve-fibres, but at their periphery. The truth of this is suggested by the fact that reflex effects can more easily be obtained by stimulating periphero-ceptors than afferent nerve-trunks. Leaving out of consideration the retinal cones and the neurons bedded in the olfactory mucous membrane, we may say that all nerve-impulses which flow into the central nervous system normally originate within some portion of the naked neuro-fibrils; in a minor degree, perhaps, by a stimulation of the undifferentiated fibrils, but chiefly by a stimulation of specific fibrilo-ceptors.

The function of a receptor is "to lower the threshold of excitability for one kind of stimulus, and to heighten it for all others" (Sherrington). This selective excitability of neurons tends to prevent a confusion of reactions. The periphero-ceptors are conveniently classified by Sherrington into extero-ceptors, intero-ceptors, and proprio-ceptors.

The extero-ceptors.—Those adapted to respond to stimuli acting upon the organism from without. As might be expected, the extero-ceptive field is rich in such ceptors. They include the ceptors pertaining to the special senses

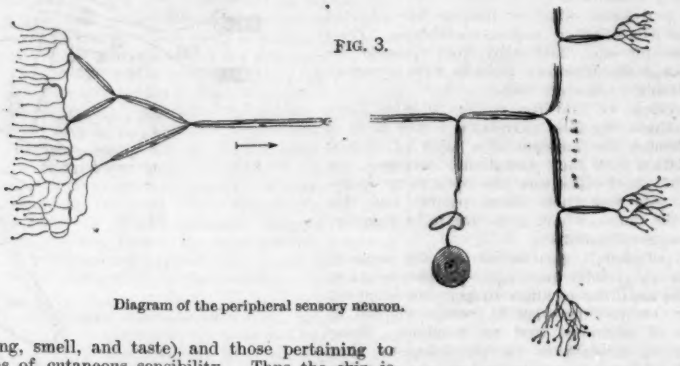


FIG. 3.

Diagram of the peripheral sensory neuron.

(sight, hearing, smell, and taste), and those pertaining to various forms of cutaneous sensibility. Thus the skin is provided with ceptors adapted to respond to specific stimuli calling up sensations of touch (light contact, and pressure), heat, cold, and pain. These receptors correspond to the so-called touch-spots, heat-spots, cold-spots, and pain-spots. The latter respond to stimuli (chemical, electrical, mechanical) likely to injure the skin, and evoke reflexes tending to protect the threatened parts by movements of defence or escape. Some hold that these "noci-ceptors" of the skin consist simply of undifferentiated naked nerve-fibres. The specific excitability of the extero-ceptors, as of other ceptors, depends probably upon the presence within them of specifically explosable chemical substances. This is certainly the case with the cones and the nasal olfactory neurons.

The intero-ceptors.—Those contained within the lining of the digestive canal and its diverticula from the pharynx onwards. Little is known of these receptors. We may surmise that they are for the most part adapted to respond to specific chemical stimuli, but in the case of impulses which obtrusively affect consciousness, the "adequate" stimulus is provided by stretching or spasm, such as that produced by flatulent distension or colic (intestinal, biliary, renal).

The sensory peripheral neurons of the viscera, running as they do in the vagus nerves, and in sympathetic nerve-trunks, are generally included in the autonomic system. They appear, however, to be indistinguishable from other peripheral sensory neurons. The peripheral strands are constituted by a single series of neurons, and not, as in the peripheral efferent autonomic strands, by two or more consecutive series. It is worthy of note that the total number of impulses passing from the viscera to the cord (through the white rami communicantes) does not exceed 8000.

The proprio-ceptors.—These are deeply bedded in the tissues other than the visceral, notably in the muscles, tendons, and joints, all of which are abundantly provided with capsulated end-organs containing ramifications of neuro-fibrils. The "adequate" stimulus of these receptors is pressure or strain. The head is, in addition, provided with special labyrinthine receptors, adapted to respond to varying labyrinthine pressures. The main purpose of this proprio-ceptive system is to regulate the reflex tonic contraction of the muscles.

2. *The Intercalary Neuron.*

This neuron may be taken as a type of those numerous neurons which are wholly situated within the central nervous system. All such neurons are provided (Fig. 8) with short, branching, receptive processes, termed *dendrites* (or dendrons), and with a single (rarely more than a single), slender, emissive process, or axon, which, except when very short, becomes medullated, and gives off, at right angles, or approximately so, medullated branches termed *collaterals*. The axon-stem and its collaterals lose at their extremities their medullary sheath, and break up into fine branches which we may term *axonic ramifications*. (Fig. 9.) These are brought into functional relation—generally at some distance from the neurosome—with the dendrites, and sometimes with the neurosomes, of other neurons, and are thus able to stimulate them.

Those portions of the axon terminals which emit the stimulus we have agreed to speak of as *mittors*, while those portions of the dendrites and the neurosomes which receive the stimulus may be distinguished as *dendri-ceptors* and *somato-ceptors* respectively. These two constitute *central ceptors* as distinguished from *periphero-ceptors*. When a nerve-impulse reaches a mittor, the latter explodes its related ceptor by transmitting a stimulus across the intervening synapse, and thus generates an impulse in the related neuron.

It was once supposed that nerve-impulses emanating from nerve centres were "discharged" from "nerve-cells" (i.e., neurosomes) along nerve-fibres, much as an electric battery discharges an electric current along a copper wire. This view can no longer be maintained. Nerve-impulses originate in neuro-ceptors connected with neuron processes, or with the exterior of the neurosome. They never originate in the interior of the neurosome. It is indeed probable, as will be shown in due course, that a nerve-impulse starting in a neuron process may reach the mittors without even traversing the neurosome.

In the case of the peripheral sensory neurons the nerve-impulses clearly originate at a distance from the neurosome,

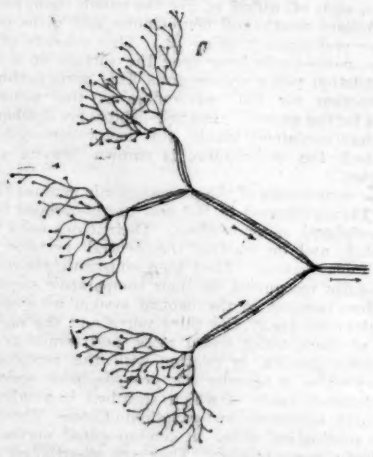
FIG. 4.

The neurosome and the single convoluted process of a peripheral sensory neuron (after Cajal). The process, which does not receive its medullary sheath until after it has ceased to convolute, is seen dividing into its central and peripheral branch.

FIG. 5.

The peripheral sensory neuron in process of being converted from a bipolar to a unipolar neuron (embryo chick twelfth day, diagrammatised from Cajal). The fibrils from each process can be seen passing in two independent bundles towards the nucleus.

FIG. 6.



Shows free ramification of sensory fibrils within non-nervous tissues. The fibrils are seen to terminate in "peripheroceptors."

FIG. 7.

Diagram showing capsulated ramification of a peripheral sensory fibre.

FIG. 8.

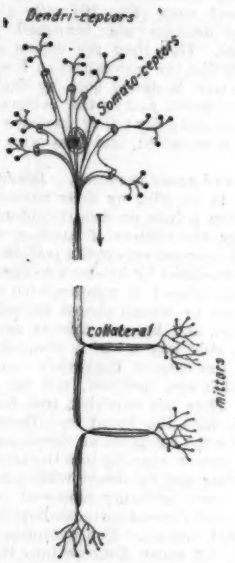


Diagram of a "central" neuron—i.e., one wholly contained within the central nervous system.

FIG. 9.

Diagram showing an axonic ramification within the central nervous system. The neuro-mittors are not represented.

FIG. 10.

Shows spines (dendri-ceptors) on dendrite of Purkinje cell (Cajal). These appear to be situated on the free extremities of neurofibrils.

and inasmuch as such neurons are the representatives of the primeval neuron which had its birth on the surface of the organism, we may assume that the primeval nerve-impulse originated, not within the neuron body, but at the extremity of its externally directed process, or, at a still earlier period, in some part of its externally directed superficies. As the neurosome receded within the organism, the starting point of the impulse came to be further and further removed from the neurosome. We are thus prepared for the conclusion that, just as in the case of the peripheral sensory neurons which are exploded by non-nervous agencies, so in the case of the centrally situated neurons which are exploded by neuro-mittors, the nerve-impulse originates, not in the interior of the neurosome, but within special receptors associated with the dendrites and the surface of the neurosome (dendri-ceptors and somato-ceptors). As most axonic ramifications are placed in relation with dendrites, we must assume that dendri-ceptors are more numerous than somato-ceptors. It seems probable that the spines and buds (Fig. 10) with which the dendrites of so many neurons are furnished play the part of dendri-ceptors. That they are actual structures, and not mere artifacts like the varicosities so frequently observed on the dendritic tree, is shown both by their peculiar response to staining reagents, and by the evidence afforded by their philogeny and ontogeny; they increase in number as the animal scale is ascended, and also with the development of the neuron.

Dendrites and axons compared.—Dendrites.—The function of dendrites is to offer by their numerous branching processes sensitive points, or dendri-ceptors, capable of being stimulated by the mittors of another neuron or of other neurons. All neurons, except the peripheral sensory neurons (which are stimulated by non-nervous agencies), are provided with dendrites placed in relation with neuro-mittors. The dendrites begin to branch almost immediately after leaving the neurosome, and become thinner and thinner with each division. In this way a highly complex dendritic tree may result (as in the case of Purkinje's "cells"), the extreme limits of which are, however, not far removed from the neurosome. Thus the dendritic tree forms, as it were, a short funnel, with the broad end directed away from the neurosome, for the reception of nerve-impulses which travel through its narrow opening into the neurosome.

The dendrites are furnished with spines and buds which, as we have seen, probably represent dendri-ceptors—i.e., organs capable of generating nerve-impulses when stimulated by their related mittors. The cytoplasm of the neurosome is continued for some distance into the dendrite trunks, which may thus contain Nissl's granules. Indeed, the dendrites are sometimes referred to by histologists as "protoplasmic processes." Dendrites are always naked, being devoid alike of medullary sheath and neurolemma, which would prevent the mittor stimuli from reaching the receptors.

Axons.—Just as the dendrites are always receptive, so the axon (it is rare for the neurosome to be furnished with more than a single axon) is always emissive, except in the case of the peripheral sensory neurons, in which both the peripheral afferent branch and the central efferent branch present the characteristic anatomical features of axons. The axon is readily distinguished from the dendrites: it is more slender; its cone of origin is devoid alike of cytoplasm and of Nissl's granules; except when very short it is sheathed; its mode of branching is peculiar in the case of the centrally distributed axons, to which I am more particularly referring, all but the very short ones giving off collaterals at right angles, or approximately so, and the first collateral coming off at some distance from the neurosome; the collaterals are usually medullated like the parent axon, and of much the same calibre as it, and they may give off subcollaterals, from which it is obvious (seeing that an axon may be some feet in length) that the entire axon tree may vastly exceed in bulk (200 times it is said) the parent neurosome. When a central axon or its collateral reaches its area of distribution the constituent fibrils separate, and by a process of division form an axonic ramification. (Fig. 9.)

An axon, or collateral, if sheathed, always loses its sheath before ramifying. The ramifying axi-fibrils are furnished with mittors which are placed in relation with the dendri-ceptors or somato-ceptors of other neurons. I assume that the total number of mittors in the central system is the same as that of the dendri-ceptors and somato-ceptors combined. It will be seen that just as the dendritic system may be represented by a funnel, so likewise may the axonic system, the narrow portion of the axonic funnel looking towards the neurosome and receiving impulses which are conducted towards the wider end.

Nature of central mittors.—In describing the termination of an axon in the central nervous system I use the term "axon" to signify both the primitive axon stem and its collaterals. After the axon has lost its myeline sheath the constituent axi-fibrils separate and divide, forming ramifications about the dendrites, or the neurosome, or both, of an adjacent neuron, or of more than one. With the receptors of these they form synapses, across which they project stimuli. Whether the actuating part of the ultimate axi-fibril, which we have agreed to call the mittor, is always a specialised structure, or whether any undifferentiated portion of the naked axi-fibril may suffice to give the stimulus, cannot for the present be determined. There is, however, definite evidence that specialised mittors exist in the peripheral nervous system, and, this being so, it appears to me more than probable that the axon-terminals of the central neurons are always provided with specialised mittors, placed in definite relation with the ceptors of other neurons. These we may term *central mittors*, in contradistinction to the *periphero-mittors* which are placed in relation with gland-cells and involuntary muscle-fibres. We may suppose that a nerve-impulse reaching a central mittor causes it to explode, and that this explosion serves as a stimulus to the related neuro-ceptor. Examples of specialised central mittors are represented in Fig. 11. They consist of swellings situated at the free extremities of axi-fibril ramifications.

3. *The Efferent or Motor Neuron.*

The neurons which send out efferent axons from the central system are of two kinds: (*a*) those the axons of which pass to voluntary muscles as motor nerve-fibres, and (*b*) those the axons of which constitute the pre-ganglionic fibres of the autonomic system, conveying impulses towards involuntary muscle-fibres and gland-cells. (Fig. 2, lower part.)

(*a*) The neurosomes of the voluntary motor neurons (Figs. 2, 12) are situated in the anterior cornua of the spinal cord and the corresponding motor nuclei of the brain-stem. Their ceptors are fired by mittors operating from within the central nervous system, and their axons, enveloped in a medullary sheath, pass out of the central nervous system by the anterior nerve roots (in the case of the spinal nerves). After their exit they receive a well-marked neurolemma, then constituting motor nerve-fibres. Every voluntary muscle-fibre receives such a double-sheathed motor-fibre, and inasmuch as these muscle-fibres greatly exceed in number the motor-fibres issuing from the central nervous system it follows that the latter must branch in their course. The branching takes place at the periphery. As the nerve-fibres near their destination they give off two or more branches, each of which is, like the parent stem, enveloped in a medullary sheath and neurolemma, and gives origin to a "motor end-organ." (Fig. 12.) This consists of a coil of naked neuro-fibrils lying upon the surface of a muscle-fibre in relation with a myo-ceptor. This latter performs the same function for the muscle-fibre as the neuro-ceptor performs for the neuron. The myo-ceptors are discharged by the mittors contained within the motor end-organs, and as a result the muscle-fibre is thrown into a state of contraction.

(*b*) The neurosomes of the pre-ganglionic neurons (Figs. 2, 13, and 14) are situated in the near neighbourhood of those of the peripheral motor neurons. Their axons soon become medullated, and on leaving the central nervous system acquire a neurolemma. They then constitute *pre-ganglionic fibres*, readily recognised by their comparative slenderness. These fibres pass out of the central system with certain of the cranial nerves (e.g., the third nerve and the vagus) and certain of the anterior spinal roots, and terminate within sympathetic ganglia, in relation with the receptors of a secondary series of neurons—*the post-ganglionic neurons*, the non-medullated axons of which, sheathed in a rudimentary neurolemma, constitute post-ganglionic fibres. These travel to their destination either in cerebro-spinal nerves, or in sympathetic nerve-trunks. They are distributed to involuntary muscle-fibres (of blood-vessels, hair-follicles, alimentary tract, bladder, uterus, &c.) and to gland-cells,

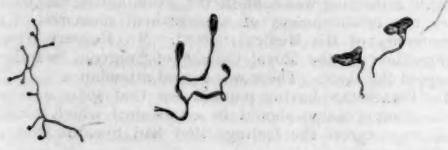
but their exact mode of termination has not in all cases been made out. In some cases the post-ganglionic fibres appear to pass directly to unstriped muscle-fibres or gland-cells. (Fig. 13.) In other cases one neuron, or even two neurons, may intervene between the posterior ganglionic fibre and the muscle- or gland-cell. (Figs. 14 and 15.) Thus, in the case of the autonomic supply to the intestines, the posterior ganglionic fibres terminate in connexion with Auerbach's plexus and Meissner's plexus, the final link in the chain being apparently constituted by the "interstitial neuron." Similar interstitial neurons are, according to Cajal, met with in the heart, as well as in many glands, and it is possible that in all such cases they form the final autonomic link.

The mittor of the final neuron, whatever this be, ends on the surface of an involuntary muscle-fibre or gland-cell, in relation, in all probability, with myo-ceptors or epithelio-ceptors; and it is through the medium of these ceptors that the autonomic nerves exercise their specific effect upon involuntary muscle-fibres and gland-cells.

Let us now, in the light of the foregoing, trace the sequence of events in the performance of a simple reflex action (Fig. 16). A non-nervous impulse acting upon the periphero-ceptor (1) starts in it a nerve-impulse. The impulse thus initiated travels through the corresponding neuron to its mittors (2). These fire the ceptors (3) of the intercalary neuron, and the nerve-impulse is thus driven on through this neuron to its mittors (4). These, again, fire the ceptors (5) of the peripheral motor neuron, and the impulse proceeds along this neuron to the mittors within the motor end-organ (6). In this way the myo-ceptor (7) is exploded, and the muscle-fibre (8) made to contract. When the efferent arm of the arc is formed, not by a peripheral motor neuron but by a chain of autonomic neurons, the mittors (4) of the intercalary neuron explode the ceptors (5′) of the pre-ganglionic neuron, and in this way nerve-impulses are generated in one, or more, successive autonomic neurons, until the ultimate mittor (6′) is reached. In this way the myo-ceptor or epithelio-ceptor (7′) is exploded, and the activity of the muscle-fibre or gland-cell (8′) modified.

It will be seen that in this simple type of nervous activity the initial impulse arises in the periphero-ceptor in response to the action of a non-nervous stimulus; and, further, that the end-effect is a change in the activity of a muscle- or a gland-cell. On ultimate analysis it will be found that all nerve impulses originate in the periphero-ceptors: the whole nervous system is set agoing through them. Throughout life countless impulses stream up the afferent nerves, firing the ceptors of related neurons in the central nervous system. The mittors of these neurons, again, fire the ceptors of other neurons; and so on until the ceptors of muscle or gland cells are reached. Thus nerve-impulses are constantly flowing and ebbing throughout the nervous system, speeding from neuron to neuron in inconceivably complex ways, but in definite order and with definite purpose, and all tending sooner or later to pass out of the central nervous system through the peripheral motor and the pre-ganglionic neurons, to bring about definite changes in muscle-fibres, striped and unstriped, on the one hand, and in gland-cells on the other. *(To be continued.)*

FIG. 11.



Terminal organs, or "mittors," on the ultimate divisions of axi-fibrils. (Cajal.)

FIG. 12.

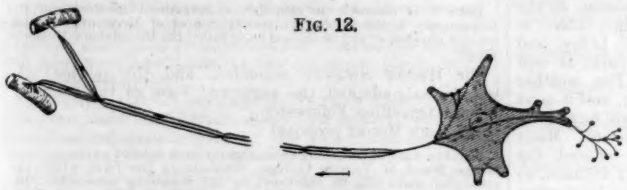


Diagram of a peripheral motor neuron. As in Fig. 8, both dendri- and somato-ceptors are represented.

FIG. 13.

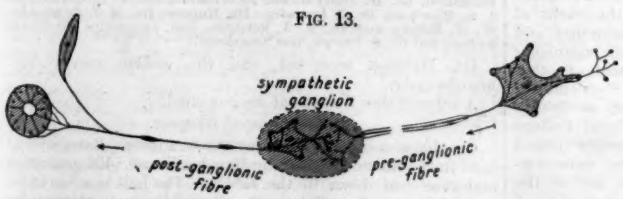


Diagram of efferent autonomic strand. The mittors of the pre-ganglionic neuron are placed in relation with the ceptors of the post-ganglionic neuron, within a sympathetic ganglion.

FIG. 14.

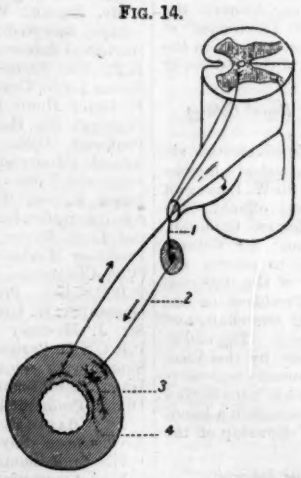


Diagram of intestinal nerve supply. While the peripheral afferent strands (following the general rule) are subserved by a single series of neurons, the efferent strands are subserved by four successive series. 1. The pre-ganglionic neuron. 2. The post-ganglionic neuron. 3. The "autochlonic" neuron of the ganglia of Auerbuch and Meissner. 4. The interstitial neuron.

FIG. 15.

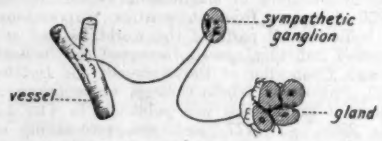


Diagram showing post-ganglionic fibre to a blood-vessel and a gland, placed in each case in connexion with an "interstitial" neuron.

FIG. 16.

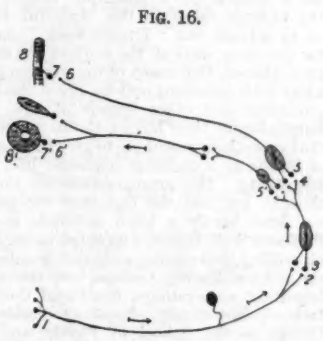


Diagram of reflex arc. (For explanation see text.)

THE BICENTENARY CELEBRATION OF THE MEDICAL SCHOOL OF TRINITY COLLEGE, DUBLIN.

(BY OUR DUBLIN CORRESPONDENT.)

THE celebration of the bicentenary of the Medical School of Trinity College, Dublin, was held on Thursday, Friday, and Saturday, July 4th, 5th, and 6th, in the fortunate circumstance of magnificent weather throughout. Some 200 delegates from universities, corporations, and learned bodies in all parts of the world, as well as many distinguished individual guests, accepted the invitation of Lord Iveagh, Chancellor of the University of Dublin, and Dr. Traill, Provost of Trinity College, to be present. The programme of the festival was published in THE LANCET of June 29th, p. 1777, and was successfully carried through. Moreover, the undergraduates arranged that "Trinity week," when the meetings of the principal athletic clubs are held, should overlap the celebration at the Medical School, so that the visitors to Dublin, in addition to the functions of the official programme, were able to see a regatta on a charming stretch of the Liffey, and the College races in the beautiful College park, as well as to attend the "Trinity week" dance. The weather for the three days of the festival was charming, and it must be confessed that many of the foreign guests will have gone away with fallacious notions about the Irish climate. Many graduates and other friends of the College offered the hospitality of their houses to the visitors from a distance, so that everything was done to give them a pleasant impression of Dublin as a centre of academic life, good fellowship, and hospitality. The arrangements for the festival were well thought out, and the fact that the programme was carried out with hardly a hitch redounds much to the credit of Professor A. F. Dixon, who acted as organising secretary, and his willing lieutenants, male and female. Also in organising the festival Trinity College had the coöperation of other important corporations, the Royal College of Physicians of Ireland, historically almost as closely related as Trinity College to the School of Physic, and the Royal College of Surgeons in Ireland, both of which bodies joined whole-heartedly in the arrangements for the entertainment of the delegates. The City of Dublin, one of the first and by far the most important of the benefactors of Trinity College, took their share in the welcome, the Lord Mayor, the Right Hon. Mr. Lorcan Sherlock, generously offering the use of the Round Room of the Mansion House, the largest hall in Dublin, for the opening dinner. His Excellency the Earl of Aberdeen, Lord Lieutenant of Ireland, showed by his presence the warmest interest in the entire proceedings, and entertained several of the visitors at the Vice-Regal Lodge.

Conferring of Honorary Fellowships at the Royal College of Surgeons.

The Royal College of Surgeons in Ireland elected six honorary fellows from the number of distinguished surgeons present in Dublin. M. Tuffier, of Paris, and Sir W. Launcelot Gubbins, to whom the honorary diploma was offered, were unable to be present, but Professor Irving Heward Cameron, of Toronto; Mr. Robert Jones, of Liverpool; Sir William Macewen, and Sir Henry Morris attended to receive the certificate of Fellowship. The conferring of the diplomas took place on Thursday at noon. The President of the College, Mr. Richard D. Purefoy, occupied the chair, and most of the members of council were present. The candidates were introduced with careful orations by the Vice-President, Mr. F. Conway Dwyer, and the honorary secretary, Sir Charles Cameron. On the conclusion of each introductory address the recipient was handed the engrossment in a handsome morocco case, and signed the roll of Fellowship of the College.

The Reception of Delegates in the College Library.

The delegates and guests were received on Thursday morning by the Chancellor of the University and the Provost. The function took place in the College Library. It was attended by delegates and guests from all parts of the world, and included many ladies. The academic robes worn by the gentlemen and the costumes of the ladies made the spectacle a very picturesque one. The library, as it is the oldest, is perhaps the most interesting and beautiful of the College buildings. The foundation-stone was laid in 1712, so that, curiously enough, it is coeval with the Medical School. The original anatomy house, of which nothing now remains, was in close proximity.

A Permanent Memorial of the Festival.

While the delegates and guests were enjoying afternoon tea in the Fellows' garden, where a garden party followed on the reception, the graduates had more serious business in hand. A meeting was held in the examination hall to consider the establishment of a permanent memorial of the bicentenary of the Medical School. Mr. ROBERT WOODS, ex-President of the Royal College of Surgeons in Ireland, occupied the chair. There was a good attendance.

The CHAIRMAN having pointed out that some memorial of the great occasion should be established which would in some way express the feelings they had towards their old medical school,

Mr. PUREFOY, President of the Royal College of Surgeons in Ireland, proposed:—

That it is desirable to establish a permanent memorial of the Bicentenary of the Dublin University School of Medicine, and that for this purpose a fund be opened to be called the Bicentenary Memorial Fund.

Sir HENRY SWANZY seconded, and the motion was unanimously adopted, the suggested form of the memorial being a travelling Fellowship.

Sir JOHN MOORE proposed:—

That the duty of collecting subscriptions and, subject to the approval of the Board of Trinity College, determining the form which the memorial shall take be entrusted to the following committee: Mr. Robert Woods, chairman; Dr. James Little, Mr. R. D. Purefoy, President, R.C.S.I.; Sir Chas. Ball, Sir W. Launcelot Gubbins, K.C.B., Director-General, R.A.M.C.; Sir John Lentaigne, Sir John Moore, Professor A. Macalister (Cambridge), Dr. Henry Jellett, Dr. W. S. Haughton, Dr. W. Dawson, Dr. F. W. Kidd, Dr. T. E. Gordon, Dr. T. G. Moorhead, Dr. J. Lunsden, Dr. Heaney, Dr. M. J. Bulger, Dr. W. G. Harvey and Dr. R. J. Rowlette, hon. secretaries, Sir Henry Swanzy and Dr. S. Pringle, hon. treasurers.

Dr. DAWSON seconded, and the motion was carried unanimously.

A subscription list was at once opened.

The Graduates' Banquet.

On the evening of Thursday the Graduates' Banquet was held in the Round Room of the Mansion House. 400 graduates and guests sat down to the tables. The hall is a beautiful one for an occasion of the sort. Round the room are replicas of several of Foley's best statues, in particular those of Stokes, the great physician, and Oliver Goldsmith, one of the most distinguished alumni of Trinity College.

Mr. ROBERT WOODS, chairman of the Graduates' Committee, occupied the chair, and amongst those present on the raised dais were: His Excellency the Lord Lieutenant, K.P., The Provost of Trinity, Sir William Osler, Professor James Little, Count Mörner (Stockholm), Sir Thomas Barlow, Professor Henri Hartmann (Paris), Professor Ernst Fuchs (Vienna), Sir Henry Morris, Professor Thayer (Baltimore), Professor Allvar Gullstrand (Upsala), Professor J. G. Adami (Montreal), Professor Johan Nicolaysen (Norway), Professor Faber (Copenhagen), Sir Malcolm Morris, Professor R. von Wettstein (Vienna), Mr. Robert H. Woods (chairman, Graduates' Committee), Councillor A. Beattie for the Lord Mayor of Dublin, the Lord Mayor of London, Professor Maximow (St. Petersburg), Sir Christopher Nixon (Vice-Chancellor, National University), Sir Rickman Godlee, P.R.C.S. Eng., Provost Edgar Smith (Philadelphia), Surgeon-General Sir W. Launcelot Gubbins (Director-General, A.M.S.), Sir J. Hawtrey Benson, P.R.C.P.I., Mr. R. D. Purefoy, P.R.C.S.I., Professor Hans Meyer (Vienna), Professor Robert Saundby (President, British Medical Association), Professor Hans Leo (Bonn), Professor R. W. Reid, Professor A. F. Dixon, Professor Blanchard (Paris), and Sir A. Pearce Gould.

The CHAIRMAN proposed the toast of "The King," which having been duly honoured, he then proposed the toast of "The Lord Lieutenant."

Lord ABERDEEN, in reply, congratulated the graduates on the occasion of the meeting, and offered a welcome to visitors from other centres.

Dr. G. A. GIBSON then proposed, in felicitous terms, the toast of "The University of Dublin," coupling with it the name of the Provost of Trinity College.

The PROVOST replied in a vigorous speech, in which he cited

examples of what he considered preferential treatment in the public services of English graduates over the graduates of Trinity College.

Sir W. OSLER then proposed the toast of "The School of Physic in Ireland," remarking that Trinity College had splendid affiliation with the University of Oxford. He alluded to the remarkable survey of Ireland made by William Petty and then referred to those brilliant days in the early part of the nineteenth century when the School of Medicine in Dublin shone out in a way that perhaps no other school in these isles shone out. After mentioning many names, he considered that it was no disparagement to those great men to say that the imperishable memories of the Dublin School rested with the names of Graves and Stokes.

Dr. A. O'SULLIVAN, F.T.C.D., in reply, spoke of the progress of the school as occurring at epochs, and being associated with certain great names. There was first the age of Macartney, and later the great time of Graves and Stokes. In more recent days the chief progress had followed on the better scientific teaching introduced by Alexander Macalister, Purser, and Cunningham. He thanked the assembly heartily for the honour which they had done his university and the medical faculty.

The CHAIRMAN then proposed the toast of "Our Guests," saying they were honoured by a number of distinguished men from practically every part of the civilised world—men who had won for themselves the foremost place in the sciences of the world.

The Lord Mayor of London, Sir THOMAS BOOR CROSBY, M.D., in a most tactful reply, disclaimed medical eminence, while thanking those present for the very cordial manner in which they had received the toast.

Dr. RAPHAEL BLANCHARD, professor of natural history, Paris, also replying, said that the relations between Ireland and France in bygone times were very good, and his countrymen and himself came to Dublin with very great pleasure, and brought with them the greetings of another branch of the great Celtic family.

Dr. ALEXANDER MAXIMOW (professor of histology, St. Petersburg) and Dr W S. THAYER (professor of medicine, Johns Hopkins University, Baltimore) having also replied, the toast of "The City of Dublin" was proposed by Sir CHARLES B. BALL (Regius professor of surgery in the University of Dublin), who said they should remember the great work of the Dublin corporation and the munificence of Lord Iveagh, which together had swept away slum areas and provided proper accommodation and housing for the working classes. The relations between the medical profession and the corporation, he said, were very cordial.

Mr. ANDREW BEATTIE returned thanks for the Lord Mayor and city of Dublin corporation, when the proceedings terminated.

Unfortunately, an excellent programme of music, which had been arranged by Dr. W. S. Haughton and Mr. C. G. Marchant, Mus. Doc., had to be omitted owing to the length of the toast list.

A Memorial to John Stearne.

On the morning of Friday the first function was the unveiling of a memorial stone to John Stearne, Fellow of Trinity College at the time of the Restoration, and founder and first President of the Royal College of Physicians of Ireland. Stearne had been buried near the altar in the old College chapel, long since removed; and the stone, the actual one erected after his burial, had been for many years in an obscure place at the back of the present College chapel. It has now been placed in the front wall of the chapel, a few feet above the ground, on the left of the entrance. The Provost, after a brief address, unveiled the stone.

The company then assembled in the College theatre to hear an address on Stearne by the Rev. J. P. MAHAFFY. This address, in learned style but punctuated with humour, told the story of Stearne's early life, described his studies, explained his philosophy, and estimated his genius. Loud applause followed its delivery.

The Reception of Addresses.

The principal function in the festival, the reception of congratulatory addresses, began immediately upon the conclusion of Dr. Mahaffy's address. The Chancellor of the University and the Provost of Trinity College presided. Professor A. F. Dixon introduced the delegates and announced the name of the body by which each address was sent. Each delegate advanced to the dais and handed the address to the Chancellor, who shook hands, afterwards handing on the address to Professor James Craig, who took charge of it. Delegates from different countries were heralded by strains of national airs played on the organ by Dr. Marchant. All the delegates were cheered not only by the students, but by their brother delegates and the guests, notable names or striking costumes—and some of the academic robes were very remarkable—earning particular applause.

The following is a list of the addresses presented and the delegates who conveyed them:—

JAPAN.

University of Kyoto: Professor Yokoburi.
University of Tokio: Professor T. Irisawa.

RUSSIA.

University of Tomsk: Professor Alexis Kouliabko.
St. Petersburg: Imperial Institute of Experimental Medicine: Professor Kouliabko.
Imperial Clinical Institute of the Grand Duchess Helena Pavlovna: Professor Stroganoff.
Imperial Military Academy in St. Petersburg: Professor Alexander Maximow.
Women's Medical Institute, St. Petersburg: Professor Rudolph Wanach.
University of Moscow: Professor A. P. Goubaroff.

FINLAND.

University of Helsingfors: Professor Robert Tigerstedt.

AUSTRIA.

University of Vienna: Professor Ernst Fuchs.

EGYPT.

Cairo Medical School: Dr. H. P. Keatinge.

SWITZERLAND.

Geneva University: Professor A. C. F. d'Eternod.

BELGIUM.

University of Ghent: Professor Eugene Eeman.

HOLLAND.

University of Groningen: Professor J. C. Nijhoff (Rector).

SWEDEN.

University of Upsala: Professor Allvar Gullstrand (representing also the Swedish Academy of Sciences, Upsala).
Stockholm: The Medico-Chirurgical Institute: Count Mörner (representing also the Royal Swedish Academy of Sciences, Stockholm).

NORWAY.

Christiania, Royal Frederika University: Professor Johan Nicolaysen.

DENMARK.

Copenhagen University: Professor Knud Faber.

FRANCE.

University of Bordeaux: Professor Denucé.
University of Paris: Professor Blanchard (representing also the Academy of Medicine, Paris).

UNITED STATES OF AMERICA.

Ann Arbor University of Michigan: Professor A. W. Hewlett.
Harvard University: Professor H. A. Christian and Dr. Channing Frothingham.
University of Pennsylvania: Professor Edgar F. Smith.

CANADA.

McGill University, Montreal: Dr. Wm. Peterson (Principal).
University of Manitoba, Winnipeg: Professor Swale Vincent.
Queen's University, Kingston, Ontario: Professor James Third.
University of Toronto: Professor Irving Cameron.
Royal Society of Canada: Dr. M'Bride.
School of Medicine and Surgery, Laval Medical Faculty in Montreal: Professor J. J. Guérin.

INDIA.

University of the Punjab: Professor Clement Caleb.

AUSTRALIA.

University of Melbourne: Professor H. B. Allen.
University of Sydney: Professor Anderson Stuart and Dr. Charles J. Martin.

ENGLAND.

University of Oxford: Sir William Osler, Bart., and Professor Francis Gotch.
University of Cambridge: Professor Alexander Macalister and the Master of Downing College.
Royal College of Physicians: Sir Thomas Barlow, Bart. (President), and Sir Dyce Duckworth, Bart. (Treasurer).
Royal College of Surgeons: Sir Rickman J. Godlee, Bart. (President), and Mr. C. W. Mansell Moullin (Vice-President).
London University: Dr. Herbert Bason, Dr. Sydney Russell Wells, and Professor George Dancer Thane.
Society of Apothecaries: Sir Thomas Boor Crosby, Lord Mayor of London.
Victoria University of Manchester: Professor J. S. Bury and Dr. Francis W. Lamb.
Liverpool University, Faculty of Medicine: Dr. Thomas R. Bradshaw and Dr. Arthur A. Mussen.
Newcastle-on-Tyne, Medical College: Professor Robert Rankin-Lyle.
Birmingham University: Professor Robert Saundby (President of the British Medical Association).
University of Durham: Professor David Drummond.
University of Sheffield: Professor C. J. Patten and Professor J. S. Macdonald

University of Leeds: Professor de Burgh Birch and Professor John Kay Jamieson.
University of Bristol: Professor Edward Fawcett and Professor Walter C. Swayne.
Physiological Society: Mr. J. Barcroft, F.R.S.
Association of Physicians of Great Britain and Ireland: Dr. George Stevenson Middleton.
Royal Veterinary College of London: Sir John McFadyean.
The Hunterian Society: Mr. Alfred Tubby (President).
General Medical Council: Sir Francis Champneys, Bart.
Royal Society of Medicine: Sir Henry Morris, Bart., and Sir Francis H. Champneys, Bart.
British Medical Association: Dr. James Alexander Macdonald.
British Dental Association: Mr. William Paterson (President).
Royal Institute of Public Health: Professor William Robert Smith.
University College Hospital Medical School, London: Professor Herbert Spencer.
King's College Hospital Medical School, London: Dr. J. C. Briscoe.
St. Bartholomew's Hospital Medical School: Sir Francis H. Champneys.
Guy's Hospital Medical School: Dr. C. J. Symonds.
St. George's Hospital Medical School: Dr. Humphry Davy Rolleston.
Middlesex Hospital Medical School: Dr. John Murray.
Charing Cross Hospital: Dr. William Hunter.
Royal Free Hospital School of Medicine for Women: Dr. Aldrich-Blake (Vice-Dean).

SCOTLAND.

Edinburgh University: Professor Sir John Halliday Croom and Professor Francis Mitchell Caird.
Royal College of Physicians, Edinburgh: Dr. W. A. Jamieson and Dr. Rutherford Ronaldson.
Royal College of Surgeons, Edinburgh: Dr. G. A. Berry (President) and Dr. J. M. Cotterill (Vice-President).
University of Glasgow: Professor Sir William Macewen and Professor Robert Muir.
Royal Faculty of Physicians and Surgeons, Glasgow: Dr. James Alexander Adams (President) and Dr. John Barlow (Visitor).
University of Aberdeen: Colonel William Johnston and Professor Robert Reid.
St. Andrews University: Professor John Charles Irvine and Dr. W. R. Scott.
University College, Dundee: Dr. D'Arcy Wentworth Thompson and Professor Hugh Marshall.
Royal Society of Edinburgh: Dr. George A. Gibson.

IRELAND.

Royal Irish Academy: Lieutenant-Colonel Sir John Ross of Bladensburg (Vice-President).
Royal College of Surgeons in Ireland: Mr. R. Dancer Purefoy (President) and Mr. R. H. Woods (ex-President).
National University of Ireland: Sir Christopher Nixon (Vice-Chancellor) and the Right Hon. Michael F. Cox.
Queen's University, Belfast: Professor Johnson Symington and Professor Thomas Sinclair.
University College, Dublin: Dr. Denis J. Coffey (President).
Royal Dublin Society: Dr. John Mallet Purser.
Royal Academy of Medicine in Ireland: Professor J. Alfred Scott.
Royal Veterinary College of Ireland: Principal Mettam.

The Chancellor's Garden Party.

In the afternoon Lord Iveagh, Chancellor of the University, entertained the entire company of guests and graduates and their friends in the beautiful gardens adjoining his Dublin residence in St. Stephen's Green. The green lawns, lovely trees, classical statuary, women's fashionable drapery, and men's gorgeous academic robes made the scene exactly resemble a French eighteenth-century picture.

Dramatic Performance at the Queen's Theatre.

In the evening, at the Queen's Theatre, the Dublin University Dramatic Society gave a performance of *She Stoops to Conquer*, rendering Goldsmith's evergreen comedy with great spirit. After the theatre some of the company went to the College Ball, and many others assembled in the house of Dr. W. S. Haughton, where the programme of music arranged for the graduates' dinner was given, a treat which Dr. Haughton's friends will not readily forget.

The proceedings on Saturday began with a

Visit to the Medical School,

where an opportunity was afforded of inspecting the historical exhibition collected by Dr. T. P. C. Kirkpatrick. It contained portraits of many of the celebrities in the history of the school, maps and engravings of the College at different periods, and various books and MSS. of historical interest. Class-rolls of Macartney's, and the famous bequest of their own bodies for anatomical study signed by many of the notable persons of Dublin prior to the passing of the Anatomy Act, received special attention.

The Unveiling of a Memorial to the late Professor D. J. Cunningham.

The bronze memorial to the late Professor Daniel Cunningham was then unveiled by Dr. JAMES LITTLE, Regius professor of physic. The memorial is in the dissecting-room, and consists of a medallion portrait in profile. The artist, Mr. Oliver Sheppard, has succeeded in producing a remarkably life-like portrait. Dr. Little's tribute to the memory of Cunningham was just and eloquent. He described him as extremely sympathetic with the students in their studies and play, never in a hurry, and never anxious to gain credit by working up brilliant men at the expense of those to whom learning came with less ease; thoroughly devoted to his school and the special science which he adorned, but at the same time a public-spirited man who had served his city and his country in many capacities. The PROVOST, on behalf of the College, accepted the custody of the memorial.

The delegates and visitors then formed a

Procession to the Royal College of Physicians: The Conferring of Honorary Fellowships,

where they were received by Sir John Hawtrey Benson (President) and the Fellows of the College, attended by the mace-bearer. The attendance was very large, and it included a number of ladies.

After a few words of welcome from the PRESIDENT, the honorary Fellows recently elected by the College—viz., Sir Thomas Barlow, Dr. J. Mitchell Bruce, Dr. G. A. Gibson, Sir David McVail, Dr. Robert Saundby, and Dr. W. S. Thayer, of Baltimore—were introduced in a few happy phrases by Dr. KIRKPATRICK, Fellow and Registrar. Two of the new Fellows, Dr. Norman Moore and Dr. James Mackenzie, were unable to be present.

The President of the Royal Academy of Medicine, Sir Charles Ball, then presented certificates to the newly elected honorary Fellows of the Academy, who were introduced by the General Secretary, Professor J. A. Scott. The following are the new Academicians: Dr. G. A. Berry, Professor David Drummond, Professor Auguste Charles François d'Eternod (Geneva), Professor Knud Faber (Copenhagen), Dr. Henry Pottinger Keatinge, M.D., F.R.C.S., Director of Egyptian Government Medical School, Cairo; Professor Hans Leo (Bonn), Howard Marsh, M.A., M.C., Sc.D., F.R.C.S., Master of Downing College, Cambridge; Professor Johan Nicholaysen (Christiania), Sir George Savage, Professor V. V. Stroganoff (St. Petersburg), and Professor Anderson Stuart (Sydney).

The Honorary Degrees of the University.

A special meeting of the Senate of Dublin University was held in the Examination Hall at 3 o'clock on Saturday afternoon for the purpose of conferring honorary degrees on certain distinguished visitors and representatives of Universities in many parts of the world. The Caput consisted of the Chancellor, the Provost, and the Senior Master Non-Regent (Rev. W. R. W. Roberts, B.D., F.T.C.D.). The candidates for honorary degrees were presented by the Senior Proctor (Rev. Thomas K. Abbott, B.D., Litt.D., S.F.T.C.D.), and were introduced by the Public Orator (Dr. Louis Claude Purser) in Latin orations. The first to receive a degree was the Lord Mayor of London, and he was enthusiastically cheered as he came forward. The Lord Mayor of Dublin, who followed, was also warmly cheered.

The following is the complete list of degrees conferred:—

LL.D.—The Right Hon. Sir Thomas Boor Crosby, Lord Mayor of London; the Right Hon. Lorcan George Sherlock, Lord Mayor of Dublin; Sir John Hawtrey Benson; Richard Dancer Purefoy; Denis Joseph Coffey; Hon. James Guerin; and William Peterson.

M.D.—Sir Thomas Barlow, Sir John Halliday Croom, Sir Rickman John Godlee, Sir Christopher John Nixon, and Sir William Whitla.

Sc.D.—Hans Horst Meyer, Sir William Osler, Alexander Petrus Goubaroff, John Whitridge-Williams, Henri Hartmann, Sir William Macewen, Count Karl Axel Hampus Mörner, Ernst Fuchs, Allvar Gullstrand, John Newport Langley, Alexander Maximow, Ernest Henry Starling, Robert Tigerstedt, Raphael Blanchard, Edgar Fahs-Smith, and Percy Faraday Frankland.

Garden Party in the Fellows' Garden and Dinner in the College Hall.

Immediately after the special commencements, or conferring of degrees, a garden party was held in the Fellows' Garden, from which many of the guests passed on to the College park to witness the College races, which were being held there.

In the evening the guests were entertained to dinner in hall by the Provost and Senior Fellows. The Provost presided and the Lord Lieutenant was present. The toasts of "The King"

and "The Lord Lieutenant" having been honoured, Dr James Little, in his happiest vein, proposed the health of the guests. Professor Gullstrand, Professor Leo, Principal Peterson, and Sir Thomas Barlow replied. Professor Starling in a thoughtful speech proposed the toast of "The School of Physic," sketching the lines of future development of medical teaching, and suggesting the appointment of whole-time professors of clinical subjects. To this toast Professor A. F. Dixon replied.

Various Entertainments.

The arrangements made for further and informal entertainment of the guests, such as boating and luncheon parties and excursions, were rendered wholly successful by the perfect summer weather which prevailed throughout.

Public Health.

REPORTS OF SCHOOL MEDICAL OFFICERS.

County Council of the Parts of Lindsey.—Dr. R. Ashleigh Glegg's fourth annual report points out "how many conditions there are, capable of amelioration, which now adversely affect the health of the young." The actual inspections were mostly carried out by Dr. Levis and Dr. Wilson. Out of 8241 children examined, 912 were without defect of any kind and 7329 were physically defective. 6164 had decayed teeth and there were 5665 other defects, each child having on an average 1·6 defects. Only 21 per cent. of the defects were treated, leading to a loss in grants from non-attendance of untreated cases. A useful suggestion is made with regard to nutrition—that a pamphlet should be prepared and given to the parents of children of poor physique, setting out plainly the essential everyday requirements for a child's health both during infancy and school life. An appendix gives suggestions as to the feeding of a family of four on 12*s.* 1*d.* a week. This includes porridge for breakfast on every week day, soup for dinner twice, once fish pie, and once potato pie. The difficulty here is that porridge is not appreciated as an article of diet as a rule, and that it takes time to cook—an objection also to soups and pies. Economy of kitchen utensils—or rather scarcity of these—and scarcity of fuel for firing are potent auxiliaries to lack of money for food in producing malnutrition. A strong recommendation is made in favour of the establishment of an open-air school or in lieu of this playground classes. The difficulties with regard to treatment are thus summarised: (1) Parents do not realise need for treatment; (2) cannot afford fee for surgeon, oculist, or dentist; (3) general practitioners only occasionally qualified to give the special treatment needed; (4) certain constant treatments need a nurse's services; and (5) hospital letters not easily obtained. To cope with the first difficulty care committees have been established with representatives from 80 parishes. The loss of grant from ringworm is estimated at £86 5*s.*, and there must also have been a good deal of loss from the 276 cases of impetigo.

Essex County Council.—The third annual report of Dr. H. W. Sinclair is a very thorough document, and includes a report (which appeared in THE LANCET of May 11th, 1912) on the heating of school-rooms by closed slow-combustion stoves. The conclusion is attained that the maximum amount of CO pollution did not exceed 1 part in 66,000, an amount which it is presumed would not affect health. But it is suggested that "some of the bad effects erroneously ascribed to the production of poisonous gases by closed stoves are really caused by an unduly dry atmosphere." It is also suggested that "the wave length of radiant heat from iron surfaces may in some way have a depressing effect upon vitality." This has an important bearing on the use of gas radiators for school warming, irrespective of the escape of fumes. The number of children examined during the year was 21,552, a percentage of 50·1 parents being present, those in the rural districts attending worst. Some interesting statistics are given with regard to exclusion for marked uncleanliness. 847 children were so excluded during the year, of whom no less than 574 came from three specially bad districts. The percentage of dirty children appears to be on the increase, although the figures may be the result of stricter discrimination. Three special reports on height, weight, and nutrition, by Mr. E. Bertram Smith; defective vision, by Mr. E. M. Wyche; and mental defects, by Mr. H. Emlyn Jones, are included. A study of the incidence of sight defects in urban and rural areas shows that for the most part the defect increases with the density of the population. Arrangements have been made for the treatment by the education authorities of visual defects. For this work in country districts a portable acetylene lamp was invented, and is proving very effective. In one school the necessary dark room for examinations was only found in an underground coal-cellar. Retinoscopy is not attempted. The report on the mentally defectives gives a total of 367 cases, divided into four groups. Of these, 67 are very defective, requiring education at a residential school or quite unfit for education, 256 ordinary mentally defectives, and 44 partly mentally defective or border-line cases who are in need of special training for a time at least. The causation of cases is elaborately tabulated, but as 274 out of 367 are ascribed to "no special class" the grouping, which is that suggested by Ireland and modified by Still, cannot be said to be particularly helpful. This is essentially a problem on which school medical work may well throw some light. An analysis of physical defects as they affected the same children shows a much higher percentage incidence than among normal children:—

—	Percentage of some defects in—	
	191 mental defectives.	Normal children in 1909–10 and in 1910–11.
Tonsils and adenoids	29·3	18·0 and 10·5
Defective vision	25·65	13·8 ,, 12·0
Otorrhœa	4·71	1·7 ,, 0·9
Marked defects of speech ...	36·1	1·7 ,, 2·0

The number of the defectives is small, but the differences are so great as to show an undoubted heavy incidence of physical as well as mental deficiency. Photographs of two children before and after treatment for infantile myxœdema are given; a really extraordinary improvement is shown. Much excellent work is done in "following up" cases for treatment, and dental clinics are being established. A report is also incorporated on the inspection of secondary school children in Essex. At the age of 12 (boys) these exceed the average of English elementary school children in height by 3·1 centimetres and in weight by 0·5 kilogramme; girls of 12 in height 5·5 centimetres and weight 1·3 kilogrammes. The excess as compared with Essex elementary school children with regard to weight is a little greater, but the height is more variable. In dental defects the secondary children showed no superiority, and there was a good deal of parental indifference to treatment; but in regard to other defects practically all the children received proper attention.

Devon County Council.—Mr. George Adkins, in the opening paragraph of his report for 1911, states that by direction of the Education Committee he has not included "the medical advice given, both as to the prevention of conditions inimical to health and the remedy of diseased conditions that may be discovered." Why this direction? During the year 17,104 children were examined, 46·56 per cent. being found defective. Only 34·74 per cent. of the notices sent to parents regarding defects needing treatment have been complied with. Three whole-time medical inspectors are employed and are given an allowance of £175 per annum to pay for "motor-car conveniences for more frequent and effectual visits to the schools." This has saved the appointment of an additional inspector and enabled useful additional work to be done, such as lantern lectures on tuberculosis, and the prescription of glasses for defective vision. A school nurse has reduced the pediculosis rate in girls by 28·3 per cent. during the year. During August, 1911, there was an outbreak of acute poliomyelitis, and it was thought advisable to at once close the schools in villages where cases occurred among the children attending these schools. Thirty-eight schools in all were closed between August and September, and were kept closed for a month, when no fresh cases were reported. One hundred and thirty children were attacked, and there were 22 deaths. Only 1 case occurred in the

majority of instances in households of several children. An instructive example is given of an epidemic following non-closure, the disease being unrecognised during school attendance and 16 children out of 40 being attacked. The cases occurred in 15 houses, of which 12 had more than one member attacked, and in one house of 13 occupants 9 had some symptoms of the disease.

Borough of Richmond (Surrey).—Dr. J. H. Crocker has devised an ingenious system of coloured enamel signals to help in the arrangement of the medical inspection cards, and classify the children into defectives, non-defectives, home visitation, and a number of other categories. Ten qualifications for the ideal school nurse are given, beginning with "strong constitution" and ending with "tact." 1437 children were inspected, and 500 notices forwarded to parents concerning 623 defects. But out of 737 cases of carious teeth only 84 notices were sent, presumably because of the absence of facilities for treatment. An inspection clinic has been set up at the public health offices, and 391 inspections were made. Treatment, with the possible exception of the dental cases noted, is said to be satisfactory, Richmond being a small borough—a point of great importance—and fortunate in its charitable institutions.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In the 95 largest English towns, having an estimated population of 17,639,816 persons in the middle of this year, 8334 births and 3648 deaths were registered during the week ending July 6th. The annual rate of mortality in these towns, which had steadily decreased from 13·0 to 11·1 per 1000 in the six preceding weeks, further declined to 10·8 per 1000 in the week under notice. During the 13 weeks of the second quarter of this year the mean annual death-rate in these 95 towns averaged 13·1 per 1000, while in London during the same period the average death-rate did not exceed 12·4 per 1000. The annual death-rates in the several towns last week ranged from 2·9 in Eastbourne, 3·7 in Wimbledon, 4·6 in Northampton, 5·4 in Hornsey, and 5·5 in Newport (Mon.), to 15·6 in Blackburn, 16·9 in Stockport and in Bootle, 18·0 in Liverpool, and 20·5 in Rotherham.

The 3648 deaths from all causes were 115 fewer than the number in the previous week, and included 342 which were referred to the principal epidemic diseases, against 390 and 376 in the two preceding weeks. Of these 342 deaths, 139 resulted from measles, 72 from infantile diarrhœal diseases, 69 from whooping-cough, 37 from diphtheria, 15 from scarlet fever, and 10 from enteric fever, but not one from small-pox. The mean annual death-rate from these epidemic diseases was equal to 1·0 per 1000, against 1·2 and 1·1 in the two preceding weeks. The deaths attributed to measles, which had been 201, 172, and 173 in the three preceding weeks, declined to 139 last week, and caused the highest annual death-rates of 2·0 in Blackburn, 2·3 in Liverpool, 3·4 in Middlesbrough, and 4·1 in Rotherham. The deaths of infants under two years of age referred to diarrhœa and enteritis, which had been 61, 55, and 75 in the three preceding weeks, were 72 last week, and included 30 in London and its suburban districts, 6 in Liverpool, and 5 in Stoke-upon-Trent. The fatal cases of whooping-cough, which had been 86, 96, and 61 in the three preceding weeks, slightly rose to 69 last week; 26 deaths were registered in London and its suburban districts, 8 in Liverpool, 5 in Grimsby, 4 in Bristol, and 4 in Birmingham. The deaths attributed to diphtheria last week numbered 37, and were 4 in excess of the average in the five preceding weeks; 6 deaths occurred in London, 3 in Birmingham, and 2 each in Portsmouth, Manchester, Gateshead, and Cardiff. The deaths referred to scarlet fever, which had been 26, 22, and 21 in the three preceding weeks, further declined to 15 last week, and included 3 in London, 3 in Liverpool, and 2 in Birmingham. The fatal cases of enteric fever, which had been 17, 9, and 15 in the three preceding weeks, fell to 10 last week, of which number 5 were registered in London.

The number of scarlet fever patients under treatment in the Metropolitan Asylums and the London Fever Hospital, which had steadily increased from 1213 to 1398 in the seven preceding weeks, had further risen to 1417 on Saturday last; 201 new cases of this disease were admitted to these institutions during the week, against 179, 188, and 195 in the three preceding weeks. These hospitals also contained on Saturday last 873 cases of diphtheria, 615 of measles, 445 of whooping-cough, and 32 of enteric fever, but not one of small-pox. The 891 deaths from all causes in London were 42 fewer than the number in the previous week, and were equal to an annual death-rate of 10·3 per 1000. The deaths referred to diseases of the respiratory organs, which had been 153, 112, and 126 in the three preceding weeks, slightly rose to 131 last week, and were 29 in excess of the number registered in the corresponding week of last year.

Of the 3648 deaths from all causes in the 95 towns last week, 152 resulted from different forms of violence, and 327 were the subject of coroners' inquest. The causes of 39, or 1·1 per cent., of the deaths registered were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified last week in London and its 14 suburban districts, in Leeds, Bristol, Bradford, Newcastle-on-Tyne, Nottingham, Portsmouth, and in 56 other smaller towns. The 39 uncertified causes of death last week included 9 in Birmingham, 7 in Liverpool, 3 in Manchester, and 2 each in Blackburn, Sheffield, Hull, South Shields, and Gateshead.

HEALTH OF SCOTCH TOWNS.

In the 18 largest Scotch towns, with an aggregate population estimated at 2,182,400 persons in the middle of this year, 1101 births and 609 deaths were registered during the week ending July 6th. The annual rate of mortality in these towns, which had declined from 15·5 to 14·0 per 1000 in the four preceding weeks, rose to 14·6 per 1000 in the week under notice. During the 13 weeks of the second quarter of this year the mean annual death-rate in these Scotch towns averaged 15·5 per 1000, against 13·1 per 1000 in the 95 large English towns during the same period. Among the several towns the death-rates last week ranged from 4·3 in Perth, 5·0 in Motherwell, and 5·3 in Partick to 22·4 in Dundee, 24·9 in Ayr, and 27·5 in Falkirk.

The 609 deaths from all causes were 23 in excess of the number in the previous week, and included 60 which were referred to the principal epidemic diseases, against 74 and 57 in the two preceding weeks. Of these 60 deaths, 18 resulted from measles, 15 from whooping-cough, 13 from infantile diarrhœal diseases, 9 from diphtheria, 4 from scarlet fever, and 1 from enteric fever, but not one from small-pox. These 60 deaths from the principal epidemic diseases were equal to an annual death-rate of 1·4 per 1000, against 1·0 per 1000 in the 95 large English towns. The deaths attributed to measles, which had increased from 27 to 32 in the three preceding weeks, fell to 18 last week, and included 7 in Dundee and 2 each in Glasgow, Edinburgh, Coatbridge, and Hamilton. The deaths referred to whooping-cough, which had been 14, 21, and 8 in the three preceding weeks, rose to 15 last week; 6 deaths were registered in Edinburgh, 3 in Glasgow, and 2 in Dundee. The fatal cases of diarrhœa and enteritis among infants under two years of age, which had declined from 15 to 9 in the four preceding weeks, rose to 13 last week, and included 3 deaths in Glasgow and 3 in Dundee. The 9 deaths attributed to diphtheria last week were 5 in excess of the average in the four preceding weeks; 5 deaths occurred in Glasgow and 2 in Aberdeen. The 4 deaths referred to scarlet fever showed but slight variation from the average number in recent weeks, and comprised 2 in Glasgow and 2 in Greenock. The fatal case of enteric fever was registered in Glasgow.

The deaths referred to diseases of the respiratory system in the 18 Scotch towns, which had decreased from 107 to 69 in the four preceding weeks, were again 69 last week, and 25 deaths were attributed to different forms of violence, against 22 and 18 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 22 town districts of Ireland, having an estimated population of 1,157,014 persons in the middle of this year, 603 births and 306 deaths were registered during the week ending July 6th. The annual rate of mortality in these towns, which had been 15·7 and 16·0 per 1000 in the two preceding weeks, declined to 13·8 per 1000 in the week

under notice. During the 13 weeks of the second quarter of this year the mean annual death-rate in these Irish towns averaged 19·0 per 1000; in the 95 large English towns the corresponding death-rate did not exceed 13·1 per 1000, while in the 18 Scotch towns it was equal to 15·5 per 1000. The annual death-rates in the several Irish towns last week were equal to 16·0 in Dublin (against 10·3 in London), 12·1 in Belfast, 12·2 in Cork, 10·2 in Londonderry, 12·2 in Limerick, and 11·4 in Waterford, while in the remaining 16 towns the mean death-rate was equal to 14·5 per 1000.

The 306 deaths from all causes in the 22 Irish towns were 48 fewer than the number in the previous week, and included 27 which were referred to the principal epidemic diseases, against numbers decreasing from 37 to 29 in the three preceding weeks; of these 27 deaths, 9 resulted from measles, 8 from whooping-cough, 6 from diarrhœal diseases, 3 from scarlet fever, and 1 from diphtheria, but not one from enteric fever or from small-pox. These 27 deaths from the principal epidemic diseases were equal to an annual death-rate of 1·2 per 1000; the death-rate from these diseases last week did not exceed 1·0 per 1000 in the 95 large English towns, and was equal to 1·4 in the 18 Scotch towns. The deaths attributed to measles, which had declined from 17 to 5 in the three preceding weeks, rose to 9 last week, and comprised 7 in Dublin and 2 in Belfast. The deaths referred to whooping-cough, which had increased from 5 to 10 in the three preceding weeks, fell to 8 last week, and included 4 in Belfast, 3 in Newry, and 1 in Dublin. The fatal cases of diarrhœa and enteritis, which had risen from 3 to 10 in the four preceding weeks, declined to 6 last week, all of which related to infants under 2 years of age; 4 of the 6 deaths were recorded in Dublin. The deaths attributed to scarlet fever last week numbered 3, against 2 in each of the three preceding weeks, and were all registered in Dublin. The fatal case of diphtheria also occurred in Dublin.

The deaths referred to diseases of the respiratory system in the 22 Irish towns, which had steadily decreased from 84 to 63 in the four preceding weeks, further declined to 47 in the week under notice. Of the 306 deaths from all causes, 92, or 30 per cent., occurred in public institutions, and 6 resulted from different forms of violence. The causes of 13, or 4·2 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 95 large English towns the proportion of uncertified causes of death last week did not exceed 1·1 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointment has been notified:—Staff-Surgeon: G. L. Buckeridge to the Haulbowline Hospital and Yard.

ROYAL ARMY MEDICAL CORPS.

Colonel T. J. R. Lucas, principal medical officer of the Jubbulpore and Jhansi Brigades, has arrived home on leave of absence from India. Colonel S. Westcott, C.M.G., has been transferred from the Scottish Command to the Southern Command, for appointment as Assistant Director of Medical Services at Portsmouth.

Lieutenant-Colonel J. H. Daly, at present holding charge of the Military Hospital at Limerick, has been selected for the higher rate of pay under Article 317 of the Royal Warrant. Lieutenant-Colonel C. A. Lane, on arrival in India for a tour of duty, has been appointed to command the Station Hospital at Madras. Lieutenant-Colonel A. P. Blenkinsop has taken up duty at Army Headquarters, Simla, as Assistant Director, Medical Services in India, vice Brevet-Colonel R. S. F. Henderson, honorary physician to His Majesty the King, appointed to command the Station Hospital at Quetta. Lieutenant-Colonel E. G. Browne, commanding the Station Hospital at Delhi, has arrived home on four months' leave of absence from India.

Major A. H. O. Young has been transferred from the Military Hospital at Halifax to Strensall for duty. Major F. Harvey has been transferred from the Southern Command to the Northern. An exchange on the roster for service abroad has been sanctioned by the Director-General between Major F. W. Cotton, in charge of the Military Hospital at Fleetwood, and Major L. W. Harrison, clinical pathologist, Military Hospital, Rochester-row. Major J. E. Brogden has arrived home on leave of absence from Gibraltar. Major O. W. A. Elsner has been transferred from the Military Hospital at Pretoria to Fort Napier, Pietermaritzburg. Major E. P. Hewitt, lately holding charge of the Military Hospital at Poonamallee, has been transferred from the Ninth (Secunderabad) Division to the Fifth (Mhow) Division. Major H. Swabey has been appointed to command the Section Hospital at St. Thomas's Mount, Madras Presidency. Major J. F. M. Kelly, in charge of the Military Hospital at Potchefstroom, has arrived home on leave of absence. Major H. E. Stadden, at present serving at Dover, has been placed under orders for service abroad during the coming trooping season.

Captain M. W Falkner has been appointed Specialist in Operative Surgery at Bermuda. Captain R. W. D. Leslie has arrived home for duty from Malta. Captain D. Coutts has been transferred from the Station Hospital at Allahabad to the Seventh (Meerut) Division for duty at Ranikhet. Captain A. C. Elliott has taken up duty at the Station Hospital, Sialkot. Captain J. H. Duguid, on arrival in India, has been appointed to the Presidency Brigade for duty at the Station Hospital, Calcutta. Captain C. Ryley has been transferred from Chatham to Shoeburyness. Captain E. V. Aylen, specialist in dermatology to the Second (Rawal Pindi) Division, has arrived home on leave of absence from India. Captain A. N. Fraser has been placed under orders for service abroad during the coming trooping season. Captain A. S. Littlejohns has been appointed Company Officer to No. 22 Company, Royal Army Medical Corps, at Wynberg, Cape Colony. Captain V. G. Johnson has taken up duty in charge of the Cantonment Hospital at Nowshera. Captain M. J. Cromie has been transferred from Kilbride Camp to Dublin. Captain R. B. Hole has taken up duty as Adjutant of the Royal Army Medical Corps School of Instruction at Edinburgh.

The following officers have been selected to attend the next promotion courses at the Royal Army Medical College, Grosvenor-road:—Captains R. P. Lewis, J. H. Graham, W. Benson, G. E. Ferguson, C. E. W. S. Fawcett, T. Scatchard, V. H. Symons, R. A. Bryden, E. L. Moss, and E. T. Potts.

Lieutenant H. R. Edwards has been transferred from the Royal Herbert Hospital at Woolwich to the South African Command for duty at the Military Hospital, Pretoria. Lieutenant E. L. Fyffe has been transferred from the Military Hospital at Fermoy to Cork. Lieutenant W. A. Frost has taken over charge of the Military Hospital at Alderney. Lieutenant G. H. Dive has been appointed Clinical Assistant at Queen Alexandra's Military Hospital, Grosvenor-road. Lieutenant C. Robb has joined the Public Health Department in Egypt. Lieutenant J. R. Yourrell has joined the Military Hospital at Rangoon for duty. Lieutenant A. G. Jones has been appointed to hold charge of the Military Hospital at Oxford. Lieutenant P. C. Field has joined for duty in Egypt. Lieutenant J. M. Elliott has been appointed to the Military Hospital at Cosham. Lieutenant J. K. Gaunt has been placed under orders for service abroad during the coming trooping season.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel C. A. Johnston has arrived home on leave of absence from India. Lieutenant-Colonel W. H. B. Robinson, first-class agency surgeon in Bengal Presidency, has been appointed to hold charge of the duties of the Residency Surgeon, Western Rajputana States. Lieutenant-Colonel F. P. Maynard, professor of ophthalmic surgery at the Medical College, Calcutta, has been granted nine months' leave of absence home from India. Lieutenant-Colonel B. H. Deare, civil surgeon at Darjeeling, has been appointed Professor of Materia Medica at the Medical College, Calcutta, and Second Physician to the College Hospital in succession to Lieutenant-Colonel J. T. Calvert, appointed to be Principal and Professor of Medicine, Medical College, Calcutta, and First Physician to the College Hospital. Lieutenant-Colonel B. J. Singh has been appointed Inspector-General of Prisons in the Province of Bihar and Orissa. Lieutenant-Colonel W. Robertson Clark has been granted six months' combined leave of absence.

Major F. F. Elwes, recently surgeon to H.E. the Governor of Madras, has been appointed Surgeon of the

Madras Third District and Second Physician to the Madras General Hospital. Major W. F. Harvey has taken up duty as Officiating Director of the Central Research Institute at Kasauli during the absence on 13 months' leave of Lieutenant-Colonel Sir David Semple, R.A.M.C. (R.P.). Major H. de V. Condon has arrived home on leave of absence from India. The services of Major R. H. Maddox, officiating civil surgeon, have been placed at the disposal of the Government of Bihar and Orissa. Major J. W. F. Rait, on return from leave, has been appointed Superintendent of the Campbell Medical School and Hospital at Sealdah in succession to Major E. A. R. Newman, transferred. Major W. S. Willmore, civil surgeon at Mirzapur, has been granted privilege leave of absence combined with study leave and furlough for a total period of 21 months.

Captain H. R. Dutton has been appointed to officiate as a civil surgeon of the second class and posted to Midnapore in succession to Major G. King, whose services have been placed at the disposal of the Government of Bihar and Orissa. The services of Captain J. K. S. Fleming have been replaced at the disposal of H.E. the Commander-in-Chief by the Government of India. Captain T. W. Harley has received an extension of his leave of absence.

TERRITORIAL FORCE.

Royal Army Medical Corps.

3rd Scottish General Hospital, Royal Army Medical Corps: Captain Brownlow Riddell, from the 1st Lowland Field Ambulance, Royal Army Medical Corps, to be Major (dated May 9th, 1912).

Attached to Units other than Medical Units.—Captain Edmund L. Anderson is seconded under the conditions of paragraph 114 of the Territorial Force Regulations (dated Jan. 6th, 1912). Captain William Haig to be Major (dated June 19th, 1912). Captain Edward F. MacL. Neave resigns his commission (dated July 10th, 1912).

DEATHS IN THE SERVICES.

The Hon. Charles Benjamin Mosse, C.B., C.M.G., late Deputy Surgeon-General, A.M.D., on July 4th, at Oberland, Guernsey, in his eighty-third year. He received his first commission in 1858 and retired on half-pay in 1876. He served in West Africa in 1866 and was present at the stockaded town of Tubarcolong (mentioned in despatches). In 1867 he was promoted to staff-surgeon for "valuable services" during an epidemic of yellow fever at Bathurst, and he served throughout the Ashanti war, 1873–74 (mentioned in despatches and made a C.B., medal with clasp). For nearly 25 years he was superintending medical officer of the Colonial Medical Department of Jamaica.

Surgeon-General Byng Thomas Giraud, late of the 31st Regiment, 19th Hussars, and 7th Fusiliers, on July 2nd. He received his first commission in 1857 and retired in 1883. He served in the Russian war, 1855, and in the Baltic Expedition and at the bombardment of Sweaborg (medal). In the China war, 1860, he was present at the action of Sinho and the storming of Tangku (medal and clasp), and also at the operations against the Taeping rebels, China, 1862–63. In the Afghan war, 1878–80, he served during the sortie on Deh Khoja, the defence of Kandahar, and the battle of Sept. 1st (mentioned in despatches). During the Egyptian Expedition, 1882, he was present at the battle of Tel-el-Kebir (bronze star and promoted to brigade-surgeon).

Lieutenant-Colonel Hugh Brodrick Mathias, D.S.O., R.A.M.C., principal medical officer of the Egyptian army, at Khartoum on June 29th, aged 49. He entered the army as surgeon in 1886, became surgeon-major in 1898, and lieutenant-colonel in 1906. In 1898 he took part in the Soudan Expedition, being attached to the Cameron Highlanders (mentioned in despatches, the medal with two clasps, and Nile Campaign decoration). He also served with distinction in South Africa, where he was in charge of the Princess Christian Hospital (mentioned in despatches and South African and King's medal).

THE NAVAL MEDICAL ASSOCIATION OF JAPAN.

The Naval Medical Association of Japan, of which Surgeon-General S. Kimura, Imperial Japanese Navy, is President, has issued its first *Bulletin* (May, 1912), consisting of some 250 pages in the native language and well illustrated. It is published at Tokio. Surgeon T. Kabeshima discusses Preventive Inoculation by the Combined Vaccine of Typhoid and Paratyphoid Bacilli. Fleet-Surgeon G. Suzuki writes on Ionic Treatment, Surgeon-Inspector I. Nishi describes a case of Cancer of the Jejunum, Staff-Surgeon Y. Onuki reports two cases of the So-called Krükenberg's Ovarian Tumour, and Staff-Surgeon T. Takamiya two cases of Amœbic Dysentery. Brief notes indicating the contents of the articles precede the main text. We congratulate our Japanese *confrères* on this production, which is excellently printed.

IMPROVISED METHODS OF AID IN THE FIELD.

In THE LANCET of Nov. 25th, 1911, p. 1499, we briefly referred to the little book by Lieutenant-Colonel H. Mackay, R.A.M.C. (T.) entitled "Improvised Methods of Aid in the Field"[1] as being most helpful in the instruction of First Aid Detachments. This book had the approval and recommendation of Sir Alfred Keogh, and it has been so well received that a second edition has now been issued. The subject is, indeed, one of importance, and the training manuals of the Red Cross Society and other similar books devote some of their space to this question, while the service journals frequently contain articles on the subject. It is manifestly, however, an advantage to discuss the subject in a work specially devoted to it, and the new edition of "Improvised Methods of Aid in the Field" is to be welcomed. In some cases the matter has been rearranged with advantage, 56 additional pages have been added, and some fresh illustrations introduced, but the size has been kept within the limits of a handy pocket manual, and the price has not been altered. Particularly valuable is the chapter on Improvised Methods of Transport by Road, Rail, and Water, and the chapter on Shelters contains useful and ingenious information. The book, which is founded on notes of lectures, brings together in one volume a record of the experiences of practical men in the field and will be useful both to members of the Territorial Service and to those who are engaged in voluntary aid work generally.

ANNALI DI MEDICINA NAVALE E COLONIALE.

Dr. Pastega, of Spezia, opens the April number of this journal with a paper recommending "protargolage"—the camel-hair pencilling of the eye, and especially of the conjunctival sacs and edges of the lids, with a 5 or 10 per cent. solution of protargol—in the treatment of infections of the conjunctiva; and as a preliminary to all operations on the eye. Dr. Dante Ferraro, surgeon-captain in the Italian navy, recommends picric acid in the treatment of burns and scalds, a 10 per cent. solution in ether being used to impregnate gauze. He has by comparative experiments found this method give better results than a 2 per cent. lotion of tincture of iodine. Under picric acid the epidermis more quickly covers the wound. There is an appreciative article on the work in tropical medicine being done by Dr. Aldo Castellani in Ceylon. This review well maintains its high standard.

[1] Improved Methods of Aid in the Field for the Use of Voluntary Aid Detachments and Members of the Territorial Royal Army Medical Corps. By H. Mackay, M.D., T.D., Col. R.A.M.C.T. With two diagrams and 81 illustrations. London: Eyre and Spottiswoode, Limited. 1912. Pp. 156. Price 1s. 6d. net.

AFTER-CARE ASSOCIATION. — This association (the objects of which are to assist recovered cases on their discharge from asylums in all parts of the country) has recently held two important meetings. The first was at Highgate in the gardens of All Saints' Vicarage, by the kind invitation of the Rev. F. H. A. and Mrs. Hawkins, when the chair was occupied by Mr. Hawkins. The meeting was addressed by Sir George Savage (treasurer), Dr. Helen Webb, and Mr. H. Thornhill Roxby. There was a large attendance, many new members were enrolled, and a good collection was made for the funds. The second meeting was held at Collingwood Towers, Camberley, by the kindness of Colonel and Mrs. Harris, when the chair was taken by the Rev. Canon Skelton, R.D. An address was given on the work of the association by Sir James Crichton Browne; and Dr. David Nicolson, C.B., the Hon. John Mansfield, Colonel Harris, and Mr. Thornhill Roxby also spoke. A very large number attended and a substantial addition to the funds resulted. Branches of the association were formed in both places.

Correspondence.

"Audi alteram partem."

FLEMING'S (HECHT'S) MODIFICATION AND THE WASSERMANN TEST.

To the Editor of THE LANCET.

SIR,—Mr. R. Donald's paper in THE LANCET of June 29th seems to call for some reply, else your readers might possibly attach an undue weight to his statements. His researches in connexion with the modification of the Wassermann reaction which I described seem to have led him to the following conclusions: (1) That nearly 25 per cent. of sera cannot be tested by the method in its simplest form; (2) that a certain percentage of cases other than syphilis give a positive reaction with the modification; and (3) that a smaller percentage of cases of syphilis give positive reactions with the modification than with the original Wassermann method. If any one of these statements were true, then the modification ought to be given up in favour of the original method, but after practising the modified method for three years on something like 12,000 samples of serum from all sorts of cases I can positively state that, in my opinion, neither of the three conclusions have any foundation. In my experience, the number of sera which do not possess any hæmolytic power for sheep's corpuscles, or which do not possess sufficient power to allow the test to be performed satisfactorily is well under 10 per cent. I cannot give the exact figure, as I have not had time to go carefully through all the records, but putting it at 10 per cent. considerably overstates the case. I have, however, noticed that on certain occasions there has been a very large number of sera with apparently little or no hæmolytic power, the controls (known to be hæmolytic) failing to dissolve the sheep's corpuscles. In such cases I have repeated the whole test, using a different salt solution with excellent results. The fault lay not with the serum or the method but with something in the salt solution which destroyed the hæmolytic power during the first period of incubation. In cases where it is amboceptor which is lacking there is no difficulty, as all one has to do is to add some hæmolytic amboceptor, either in the shape of heated human serum or immune rabbit serum. Where the complement is absent one has, of course, to repeat the test and supply the deficiency. One is then in the same position as the man who sets out to do the original method and who has inactivated his serum. In the original method he uses serum from a guinea-pig, but surely human complement would do quite well. I have repeatedly estimated the strength of my serum in complement, and I have found it very constant, and it is this constant quantity of complement which I add to the mixture in these cases. Mr. Donald, instead of disparaging this procedure, ought surely to be in its favour, for the very reason that a constant quantity of complement is used.

With regard to Mr. Donald's finding that a number of cases other than syphilis gave positive reactions, I can only state that such is not my experience. He finds that 6 cases in 82 react in this way, and had my results been comparable I ought to have diagnosed syphilis about 900 times in the last three years where it was not present. This is enough in itself to show that something must have been wrong with Mr. Donald's observation, as had such a mistake occurred in anything like that number of times the method would have been absolutely discredited by the clinicians of St. Mary's Hospital, from whom I have had almost all my material. It is not possible in a disease like syphilis to make many errors in this direction over a space of years without having the errors discovered not only by the laboratory worker but also by the clinician who is dealing with the case, but I cannot recollect having found a positive Wassermann reaction in any man who could be said to be free from syphilis (except two cases of leprosy), and in this I am supported by all the clinicians who have sent me sera and whom I have approached on the subject.

I am entirely in agreement with Mr. Donald that there may be danger in testing sera which are some days old, and that it is possible that under these circumstances a positive reaction may be obtained without the patient being syphilitic. Before I published my first paper on the subject I stored several positive and negative sera, testing them each day, and found that at the end of a week all still gave their original reactions. I have never for diagnosis, however, relied on a test of a week-old serum done in the usual way, and I think that a much better method to adopt under those circumstances is to heat the serum and to add fresh human serum in the same way that I have done in cases where complement was absent in the serum to be tested.

Dr. McIntosh in his treatise on syphilis makes a point against the reaction that I have found out of 283 supposed non-syphilitics eight cases giving positive reactions. These 283 cases were patients attending the hospital for diseases other than syphilis. Three of them had had gonorrhœa (one of them four times), and of the others the only three I have kept track of have since been apparently cured with salvarsan, and, in fact, this eight cases in 283 seems to represent the difference between the laboratory and the clinical diagnosis of syphilis.

Mr. Donald's second series of tests are ill chosen for the comparison of two methods. In the modification he uses the ordinary heart extract, while in the "Wassermann" test he uses Sach's antigen, which, according to him, gives much better results than the other. By thus introducing two unknowns, the difference of the method and the difference of the antigen, the issue is completely obscured, and I am sure that had he used the same method and two different antigens, one good and the other bad, very much wider variations would have been noted.

It is of interest in view of the vaunted superiority of the "Wassermann" reaction with its "definite and almost unequivocal results" to look back on some of the results which have been obtained by its advocates in the past. Certain of the continental observers found that 40 per cent. of their scarlet fever cases gave positive reactions, while Bayly in England, who is a strenuous upholder of the original technique against the modifications, found seven positive results out of 19 cases of pneumonia.

Mr. Donald repeats the old statement that the value of the modification can only be tested by a series of comparative tests with Wassermann's method. I heard this for the first time when I described the method at the Royal Society of Medicine in 1909, from the lips of Mr. Donald's colleague, Dr. McIntosh, but in the same number of THE LANCET in which I published my first paper on the subject there is a paper on the original Wassermann reaction by Dr. McIntosh in which he states that he only gets 84 per cent. of positive results in secondary cases and 59 per cent. in tertiary cases. This, representing as it did the very best technique available in England at the time, did not seem a very favourable standard with which to compare a really valuable method.

The next question that arises is:—What is the Wassermann reaction? Is it the reaction as Wassermann originally did it, or as he now does it, or is it any method in which guinea-pig's complement and rabbit's anti-sheep amboceptor are used? Mr. Donald apparently uses the phrase "Wassermann test" in the last sense. I have repeatedly made the statement that the accuracy of results depended much more on the quality of the antigen used than on anything else, and in this I think I am supported by most of the experienced workers with the complement fixation test. Although, however, the antigen is the most important factor in the test, this can apparently be completely altered from that used by Wassermann, and yet the reaction is the "Wassermann reaction," whereas if the nature of the complement or amboceptor is changed it is wished that the term "Wassermann test" be not applied to the method. Mr. Donald lays stress on the great differences in the quantity of the natural hæmolytic amboceptor present in human serum. This, I believe, varies from something like 12 times the minimal hæmolytic dose down to nothing, yet the observers practising the original technique obtain "scientifically quantitative" amounts by merely adding another two-and-a-half times the minimal hæmolytic dose to each. It has always interested me to know how they explained that by the addition of equal quantities to unequals they rendered the results equal.

This is not the first time that the modification which I practise has been attacked. In August, 1909, Bassett Smith, after testing 154 sera, came to the conclusion that the method

was bad owing to the frequent failure of the serum to hæmolyse the sheep's corpuscles, but later, in March, 1910, he very kindly published another note as the result of a much more extensive series of observations in which he stated that he had greatly exaggerated the number of cases in which there was a deficiency of hæmolytic power, and further that "A positive result is always reliable; in fact it was obtained earlier in the disease than with the other methods tried." All his observations in this second large series had been controlled with the original Wassermann reaction. Possibly if Mr. Donald undertakes another more extensive series of observations he may come to similar conclusions. The whole case seems to have been summed up very well in a leading article in the *British Medical Journal* as long ago as October, 1909, in the following words: "There is hardly one of the variants of the Wassermann test that has not given excellent results, and yet each one has been vigorously condemned by adherents of rival modes." Each observer seems to get good results with the method to which he is accustomed, and when he tries some other method with which he is less familiar he naturally, considering the complexity of the reaction, fails to reproduce his good results. In such cases, however, it would seem to me to be much wiser to continue the investigation and try to discover in what particulars he has gone wrong than to publish a short series of results unfavourable to any method.

I am, Sir, yours faithfully,

St. Mary's Hospital, July 2nd, 1912. ALEXANDER FLEMING.

To the Editor of THE LANCET.

SIR,—Referring to Dr. P. N. Panton's letter in THE LANCET of July 6th I have to thank Dr. Panton for saying that my work "is to be welcomed as a more serious investigation into the utility" of Fleming's modification as compared with the Wassermann test. Only since sending to you my paper at Easter I have read in Strangeways's "Clinical Pathology" (1910) Dr. Panton's modification of Fleming's procedure. So I hardly need to assure him that no criticism of, or even reference to, his modification was even implied in my paper. His further modification, mentioned in his letter, is, most will admit, in the right direction, although it takes the results of those sera out of line from the results of the remaining, active, sera and seems to entail the inactivating of them also. As my little work aimed only at testing carefully the results of Fleming's (Hecht's) modification with the results of the Wassermann technique used in this laboratory, I need trespass on your space only to explain two points referred to by Dr. Panton.

Merely "whipped sheep's blood" is recommended in Fleming's original paper.[1] Fleming and Clemenger's later paper[2] says, indeed, that the "blood may be shed into a bottle containing 1·5 per cent. sodium citrate." But this, I take it, is a concession, not a direction. Indeed, not even the proportion of such solution is specified. Moreover, Hecht in his latest directions[3] says nothing about citrating the blood. The corpuscles were, of course, thoroughly washed in copious changes of saline. As regards the antigen, Hecht in his latest directions[4] recommends, in the first place, guinea-pig heart, and, apparently in the second place, ox-heart. Heart of a syphilitic fœtus also is allowed by him. As neither of Fleming's papers says what heart is to be used for antigen, I, of course, used guinea-pig heart, prepared in the way described by Fleming.

Dr. Panton takes some exception to the remarkable results of the second series of cases, controlled by the Wassermann test with Sachs's antigen. Out of 60 sera, 11 sera that were positive to the Wassermann test showed negative to the Fleming test. Ten of these 11 sera were from patients known, by history or by clinical signs actually present, to be syphilitic, and the eleventh case was possibly syphilitic. These 11 sera, or some of them, were probably such as Hecht refers to when he says[5] "strongly hæmolytic sera are unsuitable" for the Hecht modification. In my care to use the sera fresh these may have been still too strong in their, precarious, hæmolytic system to be used fresh. Also Hallion and Bauer[6] warn against positive sera so rich in hæmolytic substances as to give a negative reaction when used active. On the other hand, R. Müller,[7] in mentioning his experience that the use of active sera gives many more positive results than the use of inactivated sera, says that a negative reaction with active serum indicates strong probability of freedom from syphilis.

But such vagaries in the opposite direction as the above 10 or 11 cases show greatly weaken the amount of that mere probability.

I am, Sir, yours faithfully,

R. DONALD.

London Hospital Bacteriological Laboratory, July 6th, 1912.

To the Editor of THE LANCET.

SIR,—I have read an article in THE LANCET of June 29th on the Fleming modification of the Wassermann test. My own experience at this hospital is much more favourable to this modification than is Mr. Donald's. I find that the hæmolytic system seldom fails to give complete hæmolysis in the salt control tubes when freshly obtained sera, not more than six hours old, are employed; it is also important to wash the sheep's red cells in a large bulk of 0·9 per cent. saline at least eight times. I have not found the "disturbing citrate" give me any trouble, and if washing is thorough it is not easy to see how very much of it can be left behind.

There is practically only one variety of case that is a nuisance: I refer to the marasmic type of infant only a few weeks old. Here the hæmolytic system is often more than precarious, owing, I suppose, to the age and state of the child. I may say I always use human heart antigen and never do the test without providing both a normal and a known syphilitic control.

In conclusion, I venture to hope that Dr. Fleming will reply to the criticism, and would point out that his method, so useful to all hospitals not licensed places under the Vivisection Act, needs a very thorough refutation before it is to be relegated to the scrap-heap. I am quite in accord with Mr. Donald's opinion that only laboratory workers of some experience are to be trusted with Wassermann reactions or any modifications thereof.

I am, Sir, yours faithfully,

ATHOLE ROSS, M.D. Cantab., M.R.C.P. Lond.,
Pathologist to the East London Hospital for
July 2nd, 1912. Children, Shadwell, E.

To the Editor of THE LANCET.

SIR,—I have been greatly interested in Mr. R. Donald's account of his investigations of the above test in THE LANCET of June 29th, and also in Dr. P. N. Panton's criticisms in the following issue. Since it is impossible to deal exhaustively with the subject in a letter, and since I may subsequently publish some results bearing on the above subject, I should merely like to add a few further remarks to those of Dr. Panton's. Firstly, we have been using Hecht's modification at Westminster Hospital since it was introduced into this country by Fleming in 1909, and I, like Dr. Panton, cannot agree to the high percentage of failures to hæmolyse in the controls mentioned by Mr. Donald—viz., 27 per cent. Our figures correspond closely with that mentioned by Dr. Panton. Secondly, it is no comparison of the two methods to vary the antigens used in each, for the conditions of the experiment immediately become incomparable. Desirable though it is that the various antigens used in the Wassermann test should give identical results, yet experimentally it is a fact that there is a variability in efficiency, and that seems to me all that Mr. Donald's investigations show. Thirdly, it has been our *routine* method here for some time past now to perform each complement fixation test for syphilis (1) by the Wassermann and (2) by the Fleming technique, and we use the *same antigen* for each series, but "standardised" separately for the two methods. Thus the results obtained are as comparable as the two methods can be made. We have found that, as a clinical test, up to the present the results are identical, except that in cases of primary syphilis the "positive Fleming" appears sooner than the "positive Wassermann," and in cases undergoing treatment the "positive Wassermann" disappears sooner than the "positive Fleming." I have used various brands of antigens—those prepared in our laboratory and those

[1] THE LANCET, May 29th, 1909, p. 1512.
[2] Medical Record, New York, 1910, vol. lxxviii., p. 188.
[3] Zeitschr. f. Imm., Band v., 1910, p. 578.
[4] Ibid., pp. 572–3–9. [5] Ibid., p. 578.
[6] Comptes Rendus de la Société de Biologie, lxix., November, 1910, p. 306.
[7] Wiener Klinische Wochenschrift, Band xxii., 1909, p. 1376.

obtained through German firms—and the results, using the same antigen for each series, have been identical. Lastly, if Mr. Donald will refer to a memorandum on this very subject to the *British Medical Journal*, March 12th, 1910, p. 632, he will find a summary of a series of experiments performed by Fleet-Surgeon Bassett-Smith, R.N., which should prove of the greatest possible interest to him from many points of view.—I am, Sir, yours faithfully,

Queen Anne-street, W., July 8th, 1912. BRAXTON HICKS.

THE ADMINISTRATION OF HEDONAL.

To the Editor of THE LANCET.

SIR,—In your issue of June 15th I notice that Sir B. G. A. Moynihan describes an improved apparatus for the administration of hedonal. The combination of an arm-rest and a stand for the tank in one piece, as he suggests, is convenient for those cases in which the infusion is made into a vein of the arm, but it is of no value in those instances in which the infusion is carried out in the leg. At St. Thomas's Hospital it has been found that infusion into the lower extremity is most convenient for all cases of operations at or above the level of the pelvis. In the last 50 cases of hedonal anæsthesia infusion into the arm was only carried out twice.

As I described in my article in THE LANCET of May 11th, 1912, the internal saphenous vein is exposed where it crosses the internal malleolus; after the cannula has been tied into place, the tubing is carried through the cleft of the first and second toes and then looped back again through the next cleft. This procedure effectually prevents any displacement of the cannula, however much the leg is moved. Fixation of the leg has never been found necessary.

I am, Sir, yours faithfully,

CHARLES M. PAGE.

St. Thomas's Hospital, Westminster Bridge, London, S.E., July 3rd, 1912.

ANGINA ABDOMINIS.

To the Editor of THE LANCET.

SIR,—The case of angina abdominis described by Dr. W. K. Hunter in an article appearing in THE LANCET of July 6th furnishes evidence in regard to the gastric origin of this disease. It would be interesting to learn upon what grounds the author ascribes the symptoms to inefficiency of the myocardium. For the sake of clearness and to render back references unnecessary I recite some of the matter of the article in the words of the writer. The facts are such that their transference from the original text in no way alters their significance. "The patient first noticed the pain, which was situated in the epigastrium, about 18 months before coming to the hospital. The pain at first was dull and aching, usually coming on about an hour after food and most often relieved by the taking of food. It was frequently associated with some flatulence, but there was no vomiting. Shortly before admission the pain had altered its character, being now sharp and shooting, and coming on in a series of very frequent paroxysms which had no relationship to the taking of food. He often complained of a feeling of sickness, but he never vomited more than a very few ounces of a greenish-looking fluid." After a month in hospital the patient died and a post-mortem examination was made. "The stomach was greatly congested, and scattered over its surface were a considerable number of small hæmorrhagic ulcers. The hæmorrhages each measured about an eighth to a quarter of an inch in diameter."

The interpretation of these symptoms and post-mortem findings is quite clear. In accordance with the results of Dr. Hertz's recent researches, pain in the epigastrium was due to hypertonus of gastric muscle, and the post-mortem signs are confirmatory of the existence of this condition during life. Pain experienced was frequently recurring and severe, indicating that hypertonus of the gastric muscle was tetanic in kind, consequently the congested and hæmorrhagic condition of the mucous membrane of the stomach was in accord with what might reasonably be expected.

Paroxysms of pain in cases of angina abdominis are usually excited by walking, and hence it is thought that they owe their origin to a cardiac reflex, but the reasoning which leads to this conclusion is fallacious.

That hypertonus of gastric muscle results from walking is a matter of clinical experience; patients with flatulent dyspepsia walk after meals with the object of unloading the chest from gas, and patients possessing irritable stomachs remain after meals in a posture which secures a state of muscular quietude, because experience teaches them that muscular effort excites vomiting. Alternations of tension and relaxation of abdominal muscle occurring in monotonous sequence during walking furnish a stimulus to gastric muscle which in the presence of flatus necessarily induces hypertonus.

Sir Clifford Allbutt has made the observation that death in cases of angina results from inhibition of the heart through vagal influence; this opinion is in accord with the theory of the gastric origin of the paroxysm.

In the prodromal stage of vomiting, when gastric muscle is in a state of hypertension, often the pulse at the wrist ceases to be felt and cardiac sounds become inaudible. I have had the good fortune on more than one occasion to be engaged in taking a tracing of the radial and jugular pulses at a time immediately preceding a vomiting attack, and I have observed the profound effect hypertension of gastric muscle exercises upon the circulation. Consequently in this condition I recognise a frequent source of heart failure and a menace to the life of the patient.

A recognition of the influence of the vagal centre in accelerating death in cases of angina is a matter of supreme importance in the conduct of treatment. The employment of digitalis as a remedy—a practice often resorted to on account of the apparent inefficiency of the myocardium—is a perilous proceeding, since this drug increases irritability of the vagal centre. I have had the opportunity of observing several cases in which this remedy has been used. In all, seizures have increased in severity, and in two death has occurred, although the mild nature of the paroxysm had not led to an expectation of this result.

I am, Sir, your faithfully,

July 8th, 1912. H. WALTER VERDON.

DIET AND INOPERABLE CANCER.

To the Editor of THE LANCET.

SIR,—Dr. A. Haig's report, which appeared in THE LANCET of June 1st, p. 1495, so far as it deals with the treatment of cases under my charge at the Cancer Hospital, calls for a few remarks. I regarded it as a moral obligation to assist Dr. Haig in any possible way to test his thesis that a diet of fruit, nuts, and biscuits might cure cancer. The responsibility of supervising the treatment of a number of inoperable cases of malignant disease led me to offer certain cases to Dr. Haig, who treated them as nearly as possible upon the lines which he desired. The results were not, as Dr. Haig admits, favourable to the diet. The notes of the cases, as they stand in the report, call for brief comments. Case 5: I took this patient off the diet because she was losing weight rapidly and because the local condition was definitely worse. On a full diet, and with alternate X ray and radium applications given by Dr. Knox, the improvement has been progressive and most satisfactory. A series of photographs shows a steady decrease in the growth, and the general condition of the patient to-day, 12 months after the experiment with the diet was undertaken, is excellent. Case 6: This patient had been in hospital for nearly two years before the diet was begun. She is still alive and in very fair health. She illustrates that form of multiple carcinomatosis in which masses of growth appear and disappear without specific treatment of any kind.

Dr. Haig's conclusion is that his thesis has not had a proper test, and I quite agree with him. But I do not think the difficulty has been that "hospital patients are too ignorant and prejudiced to give this diet a fair trial." The real difficulty is to persuade a patient who is losing flesh and becoming physically and mentally depressed that the diet responsible for this is curing the disease. I think it quite possible that Dr. Haig is right in supposing that some private patients will be found in whose minds this apparent (and to many of us real) discrepancy may be set aside by the power of their own or their physician's convictions. It will be interesting to await the results of full trial of the diet in such patients. A still greater problem facing Dr. Haig is how to get his cases sufficiently early to test his diet properly. I think he is apt to forget that, our current views upon the radical treatment of cancer being what they are, the surgeon has prior claim in all cases amenable to excision. Dr. Haig, in common with all others of us who wish to test a non-surgical means of cure, is naturally

anxious to begin early, "as soon as the nature of the disease is beyond doubt." But is Dr. Haig, with his present evidence of the value of his diet treatment, prepared to urge his conviction upon an early case of carcinoma and to accept the responsibility of the choice between it and the benefits of surgery?—I am, Sir, yours faithfully,

THOMAS J. HORDER, M.D. Lond., F.R.C.P. Lond.,
July 6th, 1912. Physician to the Cancer Hospital.

THE OPHTHALMOLOGY OF GENERAL PRACTICE.

To the Editor of THE LANCET.

SIR,—I have read with instruction Mr. M. L. Hepburn's article in THE LANCET of July 6th, and I should like to criticise his remarks on the part dealing with refraction in relation to general practitioners. In the first place I do not understand Mr. Hepburn's position when he says the general practitioner "will save himself endless labour and worry if he knows and can detect the movements of the shadows ..... and is able to estimate approximately the glasses which correct the error." Why approximately? If it is desirable for the general practitioner to acquire and retain the skill to do this approximately, he is, in my opinion, a foolish person if he does not make the little further effort and do it exactly. What fee does Mr. Hepburn imagine the general practitioner would receive for spending half an hour with his patient, "approximately" estimating his refraction, and then sending him on to the oculist for glasses? In the second place, I can assure Mr. Hepburn that he is quite wrong in assuming, because a general practitioner is in the habit of practising to some extent in refraction work, that his house becomes besieged by patients with all sorts of ocular troubles. His contention, therefore, on this ground that the general practitioner should not undertake refraction work is based on misinformation.

Mr. Hepburn is treading on delicate ground. He may be right and he may be wrong in believing the general practitioner should not undertake refraction work, but until he can give some ground which has a remote approach to accuracy for refusing the general practitioner a little pleasant and painstaking work and (in spite of Mr. Hepburn's remarks) a little special emolument, I shall remain quite unconvinced.

I am, Sir, yours faithfully,

ALEXANDER BROWN, M.B. Lond.
Bartholomew-road, N.W., July 7th, 1912.

A DISPARAGEMENT OF CHOCOLATE.

To the Editor of THE LANCET.

SIR,—The statement in an annotation in THE LANCET of June 22nd, under the above heading, that "chocolate can only do harm, in common with all good foods, when eaten to excess," is contrary to the facts of the latest pharmacological research and of clinical experience. Professor A. R. Cushny, in his "Text-book of Pharmacology and Therapeutics," fifth edition, p. 259, states that "Neumann finds that cocoa retards the absorption of the proteins and fats of the food, especially those forms of cocoa in which the fat has been partially removed. On the other hand, cocoa with a large percentage of oil delays the gastric secretion and may give rise to a feeling of heaviness and discomfort in the stomach. Its continued use may cause dyspepsia, partly from this cause and partly from theobromine acting on the gastric mucous membrane. There is no question that the food value of cocoa and chocolate is often over-estimated. It allays hunger, but this is only in part from its being a food, the local detrimental effect on the gastric mucous membrane tending to lessen appetite." What is true of cocoa must also be true of chocolate, which contains 0·5–1 per cent. of theobromine.

I have met with a case where cocoa drunk by a mother who was suckling a child was apparently the cause of the latter having slight convulsions, for these entirely ceased on her abstaining from cocoa. I have seen children whose nerves had been rendered hypersensitive so that they were excessively nervous and excitable, suffered from nightmare, talked and shouted when asleep, lost their appetite, and had bilious attacks after eating some chocolate. In adults the chief symptoms I have met with have been those characteristic of the neurotoxinia commonly called neurasthenia, headache, sleeplessness, blotchy spots on the face and neck, nausea, biliousness, anorexia, gastric discomfort, and vomiting. Sometimes these symptoms are produced immediately after eating chocolate or drinking cocoa, and then the person usually refers the symptoms to their cause, but when these symptoms are only produced by the cumulative action of the cholocate or cocoa, the patient is led to consult a physician about them because of not having recognised their cause. Recently theobromine has been shown to act poisonously on muscle like caffeine, though not quite so powerfully, and it is probable that like caffeine it interferes with the germination and growth of seeds.

It is of no use to dismiss any evidence of the poisonous results of eating chocolate by uttering the word idiosyncrasy, for Professor Cushny (*op. cit.*, p. 28) says: "Idiosyncrasy is used to denote an unusual effect for which no explanation can be found," and it is therefore a confession of mental sterility probably toxic in origin. The real explanation is probably as follows. The resistance to, and the reaction invoked by, any poison are special instances of the operation of the law of variation. All people vary in a nation to a greater or lesser extent, and all the cells composing the body vary in the same way. When, then, a poison is taken, there is a variable resistance and reaction to its action shown by all the cells of the body. A dose which will produce poisonous symptoms in one or more persons in a nation will also poison some, more or less, of the cells of all the persons who take it. The facts of idiosyncrasy are then explained as the revelation in the nation that that dose is harmful, more or less, to every person in the nation, and is harmless to none. To deny this is to deny the law of variation upon which evolution rests. Consequently no eater of chocolate or drinker of cocoa escapes some harm being done, more especially to their brain, which is the most sensitive organ in the body to all poisons, and this brain damage is certain to result in a defective judgment being exercised, which, from being defective, is totally unaware that it is so, with the result that its own verdict about itself is that it is perfectly sound, and that all right judgment is wrong and wrong right, a state, in short, of mental intoxication.

When we remember that the brain cells are always growing and multiplying, it is certain that a dose of poison which is insufficient to cause any apparent functional disorder will prevent some growth and multiplication, and this is certain to be more serious in the case of children than adults, because in the latter the rapidity of growth is less. Theobromine is then a poison continually acting in the direction of coarsening and degrading the brain or the nerve instrument of mental activity by inhibiting growth. Chocolate is not, then, either a pure or good food, and since it is being increasingly given by parents to children, it is quite certain that the detrimental effects of the theobromine it contains will cause the standard of health of the next generation to be lower than the present one, so that to encourage its consumption is to encourage the further degeneration of the nation. I am, Sir, yours faithfully,

Blackpool, July 7th, 1912. F. S. PITT-TAYLOR, M.B., Ch.B.

THE DIFFICULTIES OF MEDICAL TREATMENT.

To the Editor of THE LANCET.

SIR,—The annotation in THE LANCET of July 6th on the above subject I can most thoroughly endorse. It is sad, indeed, to think that the days of apprenticeship are over. I served with a good country practitioner for two years. I knew what drugs were, what they looked like, and could dispense as well as any chemist, for I compounded all during my term. In that time I knew all my bones, attended 15 maternity cases, besides measles, scarlet fever, chicken-pox, and the like. Can any student say that now—either as regards drugs, or the knowledge of the exanthemata? I have seen quite incompatible prescriptions from the young and yet qualified practitioner. I can now well recall an explosion and a "blood-stained" wall during my first six weeks, in my endeavour to make up a mercurial compound, and how forcibly I was impressed with the comment by two patients a few days after, "Look, they have just been doing an operation" (red oxide).

Although medical knowledge has practically now become almost a science, yet it is sorely lacking in the attendant advantages of the old system of apprenticeship.

I am, Sir, yours faithfully,

July 7th, 1912. M.O.H.

FORCIBLE FEEDING OF SUFFRAGE PRISONERS.

To the Editor of THE LANCET.

SIR,—Respecting the forcible feeding of suffrage prisoners a statement by Mr. McKenna appeared on July 4th in certain newspapers purporting to be a reply to a question in the House of Commons put to him by Mr. Goldman in reference to a memorial against the forcible feeding of suffrage prisoners signed in 24 hours by 117 practitioners, and of which we were the secretaries.

The Home Secretary's statement was as follows:—

> I have received the Memorial referred to, but as the memorialists are unable to suggest any alternative method by which prisoners who refuse food can be prevented from committing suicide I am unable to attach much weight to their representations. I may add that I have received another Memorial signed by most distinguished medical men stating that feeding by tube, if carried out in accordance with the usual rules of procedure, is neither dangerous nor painful. The compulsory feeding of recalcitrant prisoners is a most unpleasant process, extremely distasteful to those whose duty it is to carry it out, and everything is done by the medical staff of the prison to avoid it where possible, and, when it is necessary, to guard against any risk to health and to minimise the discomfort to the prisoner.

To this statement we now return the following answer:

Mr. McKenna and Medical Memorialists.

Mr. McKenna's reply to Mr. Goldman is grotesquely misleading. The medical memorialists who are opposed to the forcible feeding of suffrage prisoners have made no such statement, as is suggested by the Home Secretary, on the question of alternative methods of treating all prisoners, and of course it is impossible to obtain in a few hours from 117 busy practitioners an answer, such as he alleges he received, to a question of which they had had no notice. Apparently Mr. McKenna is under the impression that any assertion is good enough as an answer for the House of Commons. Mr. McKenna further adds that he has received an anti-memorial signed by "most distinguished" medical men suggesting that forcible feeding of suffrage prisoners is "neither dangerous nor painful." In the interests both of medical truth and the civilised treatment of political prisoners it is Mr. McKenna's duty to publish immediately this anti-memorial and the names of the signatories thereto.

If Mr. McKenna's "most distinguished" but anonymous informants are correct then they have proved the Home Secretary to have acted with the grossest injustice to some prisoners, and Mr. Ellis Griffith to have made false statements to the House of Commons. For the Home Secretary has released some prisoners and kept others in prison on the following medical grounds as stated by Mr. Ellis Griffith in the House of Commons on June 26th. A certain number (exact figures not given in Hansard) were released by Mr. McKenna because forcible feeding would have been "dangerous to health," and others because after being fed once or twice "it would be a danger to health or life (*sic*), as the case might be, if the treatment were persisted in." A prison treatment of which such statements are made is not the simple harmless process Mr. McKenna's nameless advisers allege it to be. Moreover, the actual medical facts of the cases of those persons who have been forcibly fed by Mr. McKenna are being collected, and we shall soon be able to form a just opinion of a violent procedure which has no real relation to the asylum and hospital practice to which it is sometimes compared. In fact, the falsity of this hospital analogy is completely demonstrated by Mr. McKenna himself, for he has admitted that he has been obliged to discharge many of his own cases owing to their health and lives being endangered by his procedures, whereas, of course, lunatics or hospital cases are never so discharged, and certainly not because the artificial feeding administered to them endangers their lives.

We are, Sir, yours faithfully,

AGNES SAVILL,
CHAS. MANSELL MOULLIN,
VICTOR HORSLEY,
} Secretaries to the Medical Memorial.

July 10th, 1912.

UNIVERSITY OF LIVERPOOL.—The following awards are announced:—Fellowships: Holt (Pathology), H. C. W. Nuttall; Holt (Physiology), R. Kennon; Robert Gee (Anatomy), J. H. Rawlinson; and Thelwall Thomas (Surgical Pathology), A. A. Rees. University Scholarship in Medicine: Ethel Chadwick.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The University.

THE statue of King Edward VII., which has been presented to the University by the pro-Vice-Chancellor, Alderman Clayton, was unveiled on June 27th by Mrs. Joseph Chamberlain. The statue occupies a commanding position in the entrance hall of the new University buildings. The statue, which is by Mr. Alfred Drury, A.R.A., presents the late King in full Garter robes, and most happily renders the combination of kingly dignity and genial humour characteristic of him. The following inscription is cut on the pedestal:—

> His Majesty King Edward VII., accompanied by Queen Alexandra, opened these buildings on July 7, 1909, and concluded his address thus:—To you, the students, I say that the honour and dignity of this University are largely in your hands, and I look to you to initiate and hand down worthy traditions to your successors.

Alderman Clayton has been until recently the treasurer of the University from its inception and was previously a member of the council of Mason College. The University owes much to his financial ability. The city has quite recently recognised the debt it owes to him and also the Vice-Chancellor, Alderman Beale, by conferring upon them the freedom of the city.

The General Hospital.

A bed has been endowed in memory of the late Mr. F. Victor Milward, an assistant surgeon to the hospital, who died two years ago. The Football League has also endowed a bed as a national memorial to the late Mr. William MacGregor, well known as the founder of the Association Football League.

British Association's Visit.

Birmingham is preparing to give the members of the British Association a very hearty welcome on their visit next year for their annual meeting. A general committee of about 500 members has been elected, with an executive committee of 70 and a large ladies' committee.

Antituberculosis Exhibition.

This exhibition is being held in the Town Hall and will be open until July 17th. The Birmingham health department is showing models to illustrate the incidence of tuberculosis in the city, the ages at which its attack principally develops, the classes most susceptible, and the conditions under which it spreads. Models of the city sanatoriums are presented, and also numerous pathological specimens displaying the different stages of the disease in man and cattle. Lectures will be given each evening, and during the mornings visits will be made by school children. On July 7th addresses on consumption were given in a large number of Pleasant Sunday Afternoons, brotherhoods, sisterhoods, and adult schools.

The Employment of the Physically Defective.

The second report of the special subcommittee of inquiry concerning physically defective adults and children is a document which will be found useful by all practically concerned with the problem. The report goes into questions of arrangements for the support, relief, training, and employment of cripples; and arrangements for the development of a healthy environment, coupled with endeavours to check the spread of tuberculosis. A condensed account is given of methods of training and employment in other countries, which emphasise the necessity for industrial training, labour exchanges, a central workshop where the collective trades which cannot be carried on at home could be followed, and, lastly, more systematic coöperation and definite coördination between the local education authority and the hospitals and medical charities. The subcommittee suggests the establishment of a workshop for printing and book-binding for boys, and one for millinery, art embroidery, tailoring, and general needlework for girls. In the checking of tuberculosis the establishment, among other measures, of temporary night hospitals and of work colonies is suggested. It is also suggested that children coming from homes where there is phthisis should be removed to open-air schools and provided, if necessary, with additional food.

July 9th.

NEWCASTLE-ON-TYNE.

(FROM OUR OWN CORRESPONDENT.)

Hospital Sunday Fund.

A MEETING of the Newcastle Hospital Sunday Fund Committee being held under the presidency of Dr. Thomas Hodgkin, the financial report was presented and showed that the total collection for the year was £2944, and that the balance for distribution, after paying the necessary expenses, was £2879. Various grants were recommended, and the report was adopted. The chairman said that a difficult question was raised in connexion with the distribution of the Fund. Of late years it had been the custom to use part of the Fund in the purchase of letters to the Convalescent Home and to the Newcastle and Gateshead Dispensaries. There had been an impression that the committee was paying too much for these letters, but after thought the committee made no recommendation of drastic change in the disposal of the funds.

Newcastle Medical Officer's Report on School Children.

Dr. George Foggin, principal school medical officer to the Newcastle education committee, has issued his third annual report. He expresses disappointment at the proportionately large number of cases that fail to secure any treatment for the defects found and notified. There were examined during the year 12,254 children, as compared with 8659 in 1910. Amongst various conclusions he comes to are that the clothing of the children shows a somewhat lower standard, and that nearly half the children in the schools require dental attention, a difficulty which can only be met, he says, by the appointment of a whole-time school dentist. Verminous and dirty children can be dealt with, but the clean condition is not easy to maintain. He considers that there is evidence of an improvement in the general nutrition of the children; he comments on the local efficient administration of the Provision of Meals Act, but thinks that the large number and variety of the statistics set forth in his report will be sufficient to show that other classes of remedial work will of necessity claim attention.

Convocation at Durham University.

A convocation was held on June 25th, in the Castle Hall, Durham, under the presidency of Dean Kitchin. It was stated that this was the largest in the history of the University. A list of the degrees given was published in THE LANCET of July 6th, but there were several honorary degrees given to distinguished persons, amongst whom were Sir Thomas Barlow, who received a D.C.L., and Professor Robert Howden, who received the degree of D.Sc. F. H. Bainbridge, Professor of Physiology in the College of Medicine, Newcastle, and Stuart McDonald, Professor of Pathology in the College of Medicine, were given the degree of M.A. (by vote of Convocation).

The Insurance Act: Representatives on the Insurance Committee.

In connexion with the Insurance Act a special meeting of the sanitary committee of the Newcastle corporation, to whom was given the power to nominate the corporation representatives on the Insurance Committee, has been held. The following nominations were made: Ten representatives to be appointed by the council under Section 59 (2) (b); the Sheriff (Councillor C. T. Stableforth), Councillors Dr. W. Tiplady, Dr. J. R. Mason, Dr. R. P. Dawson, G. Smith, T. Heatley, T. Matthewson and Adams, Mrs. Harrison Bell, Miss Hiley (Central Newcastle High School); one medical practitioner to be appointed by the council under Section 59 (1) (d), Alderman A. Wilson.

July 9th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

The Home for Epileptics at Maghull.

THE excellent work done at the Home for Epileptics was amply demonstrated at the annual meeting held on July 6th in the new iron hall at Maghull. Remaining in the home on Dec. 31st, 1911, were 171 males and 140 females. During 1911, 19 males and 25 females had been discharged. There were 53 applications for admission of all classes at the end of the year in excess of the vacancies. In several cases where the improvement in a patient's condition had seemed to his or her friends to justify removal, they had shortly afterwards applied to have them taken back, frequently at the patient's own request. It was found that better results could be produced with patients who were not only willing but wishful to be at the home. The financial statement for the year was again satisfactory. It had been possible to pass £2900 to the Estate Account. It was hoped that this amount would enable the committee to complete the cost of the proposed home for females on the Chapel House Estate, towards which they had a promise of a substantial contribution from one who had in the past taken a great interest in the institution. During the last month of the year 76 patients had had no attacks. The total number of attacks recorded during the year 1911 were 36,509, nearly 1000 less than in the previous year, with the same number of patients. At the homes patients had the greatest possible security with the greatest possible liberty, and the immunity from injury proved the liberty to be justifiable. The success of the treatment consisted in keeping the patient occupied; every adult colonist capable of work was expected to take his or her part. Both sexes were mostly not slow to realise that occupation and exercise were vital to any improvement in the condition of their health. In the next place provision was made for their education and training the children in the Chilton Home, having a commodious school and staff of teachers, while the adults were provided for in the evening training schools and technical classes during the winter. Ample provision was also made for the recreation and entertainment of the patients. The committee is looking forward to the erection of a third-class female home, and this, it was anticipated, would mark the limits of the colony in regard to the number of patients. Dr. William Alexander, in seconding the adoption of the report, spoke of the necessity of patients coming to the home early, and mentioned that of those who were ill less than ten years 12 per cent. were cured; of those who were treated within a year of the malady asserting itself 15 per cent. were cured. He expressed the hope that the Maghull homes which dealt only with sound epileptics would not come under the Government Bill for dealing with the feeble-minded, as they had no wish for the institution to be classified with lunatic asylums.

Degree Day at the University of Liverpool.

The July ceremony of the conferment of degrees took place on July 6th at St. George's Hall. The chair was occupied by Sir Alfred Dale, the Vice-Chancellor. The chairman made a feeling reference to the late Dr. A. T. H. Waters, who, together with the late Dr. Campbell Brown, was one of the little band of men who succeeded in establishing University College. They had many rebuffs and disappointments, but they never lost courage. But for them and for what they did those present would not have seen what they witnessed that day.

Liverpool School of Tropical Medicine.

The Royal Horticultural Society has awarded the gold medal to Professor Robert Newstead, M.Sc., professor of entomology in the school at the University of Liverpool, for his exhibit of insects injurious to cultivated plants on the occasion of the Royal International Horticultural Exhibition held in London in June last.

July 9th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Wine, Cider, and Gout.

ON July 2nd M. Motais brought before the Academy of Medicine a very interesting communication on the relations of wine and cider to gout. He first called attention to the medical tradition that gout is rare in the cider countries, and brought forward certain observations of his own on this point. The first concerned a medical man who for ten years suffered seriously from gout in spite of a rational regimen and adequate exercise. He drank Bordeaux only in moderation. On taking exclusively to a light cider in 1907 his gout promptly disappeared. In the space of five years he made

four journeys, during which he substituted wine for his cider, with the result that on returning from each of these journeys he had an attack of gout. In the interval, and under the exclusive use of cider, he was never even threatened with an attack. M. Motais's other observations only confirmed his deductions as to the innocuousness of cider. He concluded that cider, made and kept under satisfactory conditions, protects against gout and diminishes or suppresses the attacks. Wine taken in moderate quantities does not ordinarily cause gout in healthy subjects, but it is harmful to those predisposed to the disease or who have ever suffered from it.

Pyramidon in Typhoid Fever.

On June 28th M. Hirtz communicated to the Société Médicale des Hôpitaux some observations on many patients attacked with typhoid fever in whom the administration of small doses of pyramidon (15 to 20 cgm.), combined with caffeine, induced a sharp fall of temperature with, in one case, greenish vomiting and contraction of the abdominal muscles, which suggested the occurrence of a perforation. M. Rist said that he also had observed sharp falls of temperature with phenomena of collapse in many typhoid patients who had taken only 15 cgm. of pyramidon. M. Brault recalled the fact that similar accidents had been remarked before following on the administration of moderate doses of salicylic acid and even of antipyrine. These drugs, therefore, should be avoided in typhoid fever.

Medical Experts in Industrial Accidents.

M. Briand, the Minister of Justice, has addressed to the presidents of the Courts of Appeal a circular relating to medical expert testimony in cases relating to industrial accidents. The Minister said that in 1910 M. Barthou, then Minister of Justice, had pointed out that the expert appointed must not be either the medical man who had attended the injured person or one connected with the insurance society to which the head of the business was affiliated. While not expressly interdicting the choice of a medical man connected with some other insurance company, the circular of 1910 pointed out the difficulties that might result from the combination of the two functions, and recommended that, when the number of available medical men permitted, no member of an insurance society or of a guarantee association should be enrolled on the list of medical experts, or at least that he should never be called in a case of industrial accident. But these regulations were not always observed, and medical men known to be connected with insurance companies continued to be called. Under these circumstances M. Briand again called attention to this matter, and asked the Presidents of the Courts of Appeal to call on the Presidents of the Civil Courts in their jurisdiction to take the necessary steps to make known the above-mentioned regulations. To effect this, the medical officers of insurance societies or of guarantee associations against industrial accidents will be called on to choose between their insurance affiliations and a place on the list of medical experts; or, at least, the list will be divided into two parts, of which one shall contain the names of only those medical men who may be called in the class of causes with which it deals.

The Occupation Injuries of Farriers.

M. Tasset recently discussed before the Société de Pathologie Comparée the injuries to which farriers are especially exposed by their occupation—viz., burns, hammer contusions, penetrating wounds from fragments of metal struck on the anvil, nips with the pincers, or injuries with the paring knife or by nail-points. He urged the necessity for such workmen being protected by a leather apron, a flannel girdle, a buttoned blouse, and for their keeping constantly inspected the tools they use, and employing them with care and skill.

A Practical Method of Disinfecting the Hands with Tincture of Iodine.

At the Academy of Science on June 24th M. Taphanel, master of the Conference on Hygiene at the National School of Grignon, pointed out the widely extended use at the present time of tincture of iodine for the disinfection of the field of operation, the advantages of which are so universally recognised that it would seem useful to extend its employment to the disinfection of the operator's hands. The mechanical measures in common use cause a by no means negligible loss of time. M. Taphanel therefore proposes the following method. 250 c.c. of tincture of iodine are poured into a test-glass with a conical bottom, from 25 to 30 centimetres in depth and of a diameter of from 16 to 18 centimetres. Each hand is plunged in succession several times to the bottom of the glass. The tincture thus reaches a level a little higher than that of the metacarpophalangeal articulations. The rest of the hand and the forearm can be swathed in absorbent wool saturated with the tincture. When the surgeon considers that the action of the iodine is sufficient he rinses the hands and forearms in a very weak solution of sodium bisulphite. Instantaneous decolouration follows. This method presents a triple advantage. Apart from the antiseptic action of the bisulphite, which, indeed, is superfluous after that of the iodine, perfect disinfection is obtained, time is gained, and finally, M. Taphanel remarks that hands thus treated lose for the time being their usual moisture; the perspiration does not become re-established for about an hour, which is a great advantage for certain surgeons who are compelled to make use of gloves.

Troubles of the Memory after Traumatisms.

M. Tuffier called the attention of the Société de Chirurgie on July 3rd, to the mental troubles consequent on traumatisms which, he said, have not received adequate attention. He has had the opportunity of observing a certain number of injured people who developed amnesia, and cited the case of one of them, an officer, who remained 19 days after a fall from his horse without recovering his memory. It returned little by little, but he never afterwards had the least recollection of what had taken place immediately before the accident or of the accident itself. In certain other cases M. Tuffier has observed the same phenomena, where it has proved possible to determine the persistence of the amnesia concerning the circumstances relating to the accident. Sometimes this loss of memory in the injured may lead one into error. Analysis of the facts leads to the conclusion that we have to deal with a special amnesia, whose evolution varies with its subjects, but that often it is permanent in regard to certain facts touching the circumstances of the accident itself. The mechanism of these troubles is dependent on two factors—the loss of memory and the shock—and is connected with the impression and the fixation of objects in the encephalon. In some cases vascular lesions may be the cause; in others the explanation must be sought in the phenomena of dynamism.

The International Society of Tuberculosis.

The competition established by this society will close on Dec. 1st next. A prize of 500 francs, one of 100 francs, two of 50 francs each, and gold and silver medals are offered. Those who wish to enter must send their essays before Dec. 1st to the secretary-general, Dr. Georges Petit, 45, Rue du Rocher, Paris, with whom also medical men of all nationalities can enter their names for membership in the society.

July 9th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Free Choice of Medical Advisers for Members of the Krankenkassa.

ONE of the oldest grievances of the profession as regards the medical service in connexion with the system of compulsory insurance against sickness (Krankenkassa) has recently been done away with in this city to a limited extent, two large factories having organised, in coöperation with the profession, a special medical service for their workpeople, for whom they are by law bound to provide medical attendance. Hitherto all the employers belonged to the Krankenkassa, and their employees being *ex facto* members of this association had to rely upon certain appointed practitioners for medical help. This led to several unsatisfactory conditions. Very often the patients had not the necessary confidence in the medical men to whom they were allotted, and the professional men were often over-burdened to such a degree that they were incapable of devoting to individual cases the time necessary for their examination.

For a long time the German or Leipzig system of free choice of medical men for members of sick clubs (freie Aerztewahl der Krankenkassa) has been demanded here also, both by the medical officers and the employees; but neither the Krankenkassa nor the employers were willing to consent to it for obvious reasons. Recently, however, as already mentioned, two factories, employing about 700 persons, resolved to make the experiment. All the medical men of Vienna are at liberty to join the medical staff of this new "free-choice sick club," but must agree to the condition that members of this club receive medical advice at the rate of nearly 10*d.* per visit at the medical officer's consulting room, or double the amount for a visit made by him at the patient's home, whilst the charges for night visits are 50 per cent. more. Operations, consultations, and specialist treatment are charged for as extras, always at the rate of about 50 per cent. below the ordinary minimum rates for ordinary private patients. The advantages to the patients and the profession are manifest. The patient can choose either an adviser in whom he has confidence or one of exceptionally high reputation. He is sure to be treated better than the ordinary Krankenkassa patients, for he knows that under this system the medical officers are much better paid for their trouble. The medical officers of the Krankenkassa have several times pointed out that under the existing arrangement their fees work out at a little over 2*d.* for a patient seen in the consulting room, or 3*d.* for a visit made to the patient's home. This important improvement in fees is very satisfactory, but still more so is the fact that the present system of fixed payment in the Krankenkassa has received a severe blow. If the arrangement proves to be a practical success—and there is no reason to expect otherwise—the other Krankenkassa will be forced to follow suit, and then the position of the medical officers will be better than at present.

Society for the Care of Deaf-mute Children under School Age.

As a result of inquiries made by the Society for the Care of Children it has been found that in this country no provision whatever exists for deaf-mute children until they reach the age of 7 years, when the law compels them to attend one of the public schools, and there are very few schools and very few teachers for deaf-mute children. Acting on the knowledge of these conditions, a society has been formed, under the auspices of the well-known otologists, Professor Alexander and Dr. Urbantschitsch, and their assistants, with a view to establishing institutions where children under 7 years could be taught and cared for if their hearing was seriously affected. It is hardly necessary to say that such institutions would be a great boon to the community, for every practitioner knows how often deafness, and consequently deaf-mutism, occur in children after an attack of measles, scarlet fever, whooping-cough, and other infectious diseases. Very often a slight degree of hearing remains, but the small stock of words and the limited power of speech attained up to this tender age are lost if the friends of the child are not able to make good use of the little that has escaped destruction. These children have then to learn anew at school how to use their voices and much valuable time is lost. The society intends to keep as many of such children as possible under observation, to assist their parents with money when necessary to prevent by proper treatment the advent of deafness, to prevent mutism by proper instruction to parents and patients, and to convince the public, especially the poorer classes, whose children are the most frequent sufferers, of the possible good results to be obtained by due care.

The Production and Consumption of Beer in Austria.

According to a report issued by the Union of Austrian Brewers there were in this country in the year 1911 only 1240 breweries, as compared with 1267 in the previous year. The production was 25,570,763 hectolitres, each containing 100 litres or 22 gallons; the total output was an increase of 10 per cent. over that of the previous year, and the duty paid thereon amounted to over £4,000,000 sterling. The corresponding figures for Great Britain were 4226 breweries, producing over 58,820,000 hectolitres of beer, on which a duty of over £12,000,000 was paid. A large percentage of the Austrian beer is exported, especially that which is brewed in Pilsen. No more than 40 litres (9 gallons) of beer are consumed annually per head of the population in this country, a result which compares favourably with the figures published for Bavaria, England, and Belgium. As a rule, the so-called "beer heart," which is frequently met with in Southern Germany, is rare in Austria, since in a good many districts wine of a light kind is preferred. On an average the proportion of alcohol in Austrian beers is low, being in the majority of the kinds not more than 3 per cent., whilst the stronger beers are exported. In the Austrian hospitals alcoholic neuritis, alcoholic cirrhosis of the liver, and other diseases attributable to alcohol are regarded more as the outcome of wine or gin ("schnaps") than of our beer.

Visit of American Surgeons to Vienna.

Some time ago the Interurban Surgical Club of America drew up the programme of a European tour for its members, a portion of it being devoted to a visit to the old centres of medical interest in Vienna. The general arrangements were similar to those of the journey undertaken two years ago, which brought the American surgeons to the United Kingdom. This time about 40 medical men, several of whom were accompanied by their ladies, came to Vienna, and were received most cordially. They visited both the old and the new General Hospital, and had ample opportunities of seeing the work done in our clinics, hospitals, and other institutes of a medical character. A large proportion of the members of the Anglo-American colony in Vienna are medical men, and the arrival of these visitors was naturally an event of much interest for them.

Restriction of Capital Punishment in Austria.

The penal code is just now undergoing consideration by the legislature, and the Government has laid before the members of Parliament a series of amendments which possess a certain interest for medical men. Amongst other items, it is worth mentioning that the sentence of death will, according to these amendments, be inflicted for only two offences, high treason and murder, and only for aggravated cases of even these, whereas at present six offences are punishable with death—namely, treason, murder, arson with the intention of killing, robbery which resulted in the death of a person, violence with the same result if this could be expected by the culprit, and the use of explosives for the purpose of bringing about a fatal result. In future an attempt to kill the Emperor will involve a sentence of death, and the same will apply in cases of murder without extenuating circumstances. Anyhow the amendment states that imprisonment for life is just as effective in protecting the public against the culprit, whilst the comparative rarity of capital punishment will tend to increase its awe-inspiring, deterrent effect. Even within the last ten years executions have been very rare, as the Emperor nearly always exercised his privilege of pardoning a sentenced murderer. In the last decade 595 sentences of death were passed in this country, but only 18 of these criminals suffered the extreme penalty of the law—death by hanging. The present amendment is only a preliminary step to the complete abolition of the death penalty in this country, as is already the case in Italy, the Netherlands, Norway, Switzerland, Roumania, Portugal, and several American States.

Accidental Poisoning with Barium Carbonate.

As already mentioned in THE LANCET of June 29th, a fatal case of barium poisoning occurred not long ago in Prague owing to the accidental substitution of barium carbonate for barium sulphate, the victim being a patient whose stomach it was intended to examine by the X rays. It has now been found that the mistake occurred in the establishment of a wholesale druggist, where a packet of barium carbonate was wrongly labelled barium sulphate. In consequence of this accident the Oberste Sanitätsrath, or chief board of health, has called the attention of medical men, hospital boards, and pharmaceutical chemists to the necessity of making sure of the insolubility of all substances used for such a purpose.

July 8th.

UNIVERSITY OF OXFORD.—The following award has been made: Theodore Williams Scholarship in Pathology, G. E. Beaumont, B.M., University College.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

The Indian Sanitary Service.

THE Government of India has issued a long resolution on the question of the improvement and strengthening of the Sanitary Service in India. It is claimed that the administrative machinery of the sanitary department is already in most respects complete and efficient. The improvements that the Government of India desires to effect are in the direction of further decentralisation of control, of widening the field of recruiting by throwing open the higher posts to fully qualified Indians of proved aptitude, and of strengthening the staff in some provinces in which at present it is admittedly inadequate. It has now been decided to empower local governments to select their own sanitary commissioners from officers serving in the provincial sanitary departments, provided no officer of 15 years' service be appointed without the previous sanction of the Government of India. It is also laid down that there should not be any limitation to the tenure of office of provincial sanitary commissioners. It has become evident that the existing number of deputy sanitary commissioners in more than one province is inadequate in view of the exacting nature of the duties which they have to perform and the unwieldy size of their charges. The area served by these officers ranges from 129,241 square miles in Madras to 24,597 square miles in Bombay, and the population from 36½ millions in Madras to 3½ millions in Bombay. The Government of India has now decided to create eight additional appointments of this class, two each in the three provinces of Madras, Bengal, and the United Provinces, and the two which were originally proposed for Eastern Bengal and Assam. The allotment of these posts with those sanctioned for Bengal will require readjustment in view of the recent administrative changes. The appointments of deputy sanitary commissioners will no longer be reserved for officers of the Indian Medical Service, and Indians possessing the necessary qualifications will be eligible for these posts. The selection of candidates for deputy sanitary commissionerships, whether officers of the Indian Medical Service or not, will remain with the local governments, subject to the following conditions: (1) That the candidate holds a British diploma in public health and a registrable medical qualification; (2) that no officer is appointed who is not an accepted candidate for the sanitary department; and (3) that the Government of India is asked for an officer when the local government has no candidate who is qualified and on its accepted list of candidates. The Government of India consider that the terms to be offered to deputy sanitary commissioners not belonging to the Indian Medical Service should be non-pensionable, but that the scale of pay should consequently be fixed at rather more than two-thirds of the pay of Indian Medical Service officers in the department. The scale which it has determined is as follows:—

1 to 2	years of service	(probationary)	...	...	Rs.500
3 „ 5	„ „	„	...	...	600
6 „ 10	„ „	„	...	...	700
11 „ 15	„ „	„	...	...	800
16	„ „	„	or over ...	...	900

For approved service of over 20 years pay at the rate of Rs.1000 will be given up to 25 years, which will ordinarily be the limit of service. Officers appointed on this scale will be eligible to leave under the Indian Service leave rules. The first appointment will be made on probation for a period of not less than two years, and no officer will receive any increment of pay during the probationary period of his service, but in the case of men who have rendered services as municipal officers of health, the period of probation may be dispensed with at the discretion of the local government, and the full rate of pay (viz., Rs.600) allowed. All deputy sanitary commissioners will be debarred from private practice. Another part of the administrative machinery which has attained a position of varying usefulness in different provinces is the Sanitary Board. The constitution of the boards should, the Government of India considers, be determined by the local governments with reference to the functions with which they are to be entrusted.

Health Officers for Indian Towns.

It has been prominently brought to notice that the weakness of the executive establishment of the Sanitary Service and the inadequacy of the staff of trained officers of health is a defect which must be remedied as a necessary preliminary to any substantial improvement of sanitation. The Presidency towns and a few of the larger cities have health officers; but as a rule the civil surgeon is the only health official for the towns in a district. It is difficult for him to give sufficient attention even to the sanitary requirements of the headquarters town. It is impossible for him to make more than an occasional inspection of other towns. The scheme now sanctioned provides for the appointment of health officers of the first class for the larger municipalities and of the second class for the smaller towns. In accordance with the detailed proposal received from the local governments a health officer of the first class will be required to have a registrable medical qualification and a British diploma in public health. The necessity for the British diploma will, however, be only temporary, as the Government of India trusts that it may be possible to remove the second restriction as soon as arrangements can be made in India which will enable Indians trained in their country to become health officers of the first class. For health officers of the second class the main qualifications will be a good general education, supplemented by a course of training in public health approved by the local government. A salary of Rs. 300–20–500 is considered for officers of the first class (with higher pay in exceptional cases) and of Rs. 150–10–300 for officers of the second class. The Government of India considers that the necessary power should be vested in local governments to require a municipality to appoint a health officer and to veto the appointment of an unfit person. In order to assist local governments to establish this trained service the Government of India has offered to grant an annual subsidy to those governments which cannot find the money from provincial funds.

Indian Sanitary Inspectors.

The subordinate supervising staff of the conservancy establishment of Indian cities and towns also calls for improvement. The Government of India thinks it desirable that a service of trained sanitary inspectors should be organised in municipalities, based on such a standard of population, income, or area as commends itself to local governments. The Government trusts that local governments will be able to give assistance to such municipal bodies as require it in the organisation of this subordinate staff.

The 1911 Census.

When the decennial Census is taken in India four infirmities are specially registered—viz., insanity, blindness, leprosy, and deaf-mutes. The figures for these infirmities in the Punjab have now been tabulated, and show a notable diminution during the decade. The total number of persons in British territory and Native States registered as suffering from any infirmity has fallen from 107,765 to 90,602. More than half these suffer from blindness—viz., 61,521—and the deaf-mutes number over 20,000. It is curious to note that while the number of blind females is not much smaller than that of males, the proportion of females suffering from other infirmities is much smaller than that of males. Of insane persons, 4111 are males and 2189 females; of deaf-mutes, 12,672 are males and 7571 are females; of lepers, 2233 are males and only 858 are females. The difference in the last case is so great as to suggest concealment of cases of leprosy amongst certain classes of females. The Census tables giving the area and population of districts are eloquent of the ravages of plague and malaria during the last decade. As compared with an increase of 6·9 in the population of British territory between 1891 and 1901, there was in the last decade an actual decrease of 1·7 per cent. Every district in the Punjab without exception shows a decrease. The greatest proportional decrease is in Ludhiana district. In the Native States the actual decrease has been 4·8 per cent., this being chiefly in the Phulkian or Sikh States.

The Casualties of the Abor Expedition.

The summary of casualties in connexion with the Abor Expedition, published in this week's *Gazette of India*, shows one officer (Captain J. R. Hutchinson, Assam Valley Light

Horse) severely wounded, two men of the 1-2nd Gurkhas killed and two slightly wounded, two followers killed (one died of wounds) and three severely wounded. One British officer (Captain A. M. Hutchins), one Indian officer, five non-commissioned officers and men, and 47 followers died of disease. Four British officers, seven British warrant and non-commissioned officers, and 224 Indian troops were invalided, and 477 sick followers had also to be invalided and returned to their depôts or other stations.

Honorary Physicians to Government Hospitals.

A resolution published in the current *United Provinces Gazette* states that the Lieutenant-Governor is desirous of appointing private medical practitioners as honorary physicians and surgeons of Government hospitals. He directs that if suitable medical practitioners are ready to take up the appointments as honorary physicians and surgeons they shall be appointed at the Government hospitals at Allahabad, Benares, Bareilly, Cawnpore, and Meerut. These appointments will be in the first instance for three years, and at the end of that period it will be decided whether the system has been sufficiently successful to justify its continuation or extension.

Noises in Calcutta.

A special subcommittee of the Calcutta corporation is considering the means of removing the noise of municipal carts, and it is understood that a prize for the design of a vehicle with noiseless wheels will be offered in due course.

A Golf Champion.

Last month Major A. Chalmers, I.M.S., won the golf championship of Southern India for the second time in succession. His opponent was 2 up on the first round in the afternoon. Chalmers at once wiped off this advantage against him, and was 3 up at the turn for the second round, eventually winning by 3 up and 2 to play.

June 7th.

Obituary.

WILLIAM MURRELL, M.D. BRUX., F.R.C.P. LOND.,

SENIOR PHYSICIAN TO, AND LECTURER ON MEDICINE AT, WESTMINSTER HOSPITAL.

Dr. William Murrell, whose death we recorded last week, was born on Nov. 26th, 1853. His father was William Kenrick Murrell, M.A., barrister-at-law. He was educated at Murray's School, Wimbledon, and University College, London, and thence passed on to University College Hospital. He qualified L.S.A. in 1874 and obtained the diplomas of M.R.C.S. Eng. and L.R.C.P. Lond. in the following year. In 1877 he became a Member of the Royal College of Physicians and was elected Fellow in 1883. He took the M.D. degree at Brussels in 1879.

Dr. Murrell shortly after qualification became demonstrator of physiology in the Medical School of University College Hospital, and held the Sharpey Physiological Scholarship. He was always keenly interested in pharmacology and was much influenced by Dr. Sidney Ringer, whom he helped in some of his researches. His earliest independent publication was on "Nitroglycerine as a Remedy for Angina Pectoris," which was written in 1880. About this time he joined the staff of the Westminster Hospital Medical School as teacher of histology, and soon afterwards was appointed medical registrar at the hospital. In 1886 he was elected assistant physician, and in 1896 physician. He was devoted to his work in the wards, and his death was without doubt hastened by his persistence in returning to hospital labours in spite of ill-health and against the advice of his friends. For several months before his death he had suffered with heart disease, and in the spring of this year dropsy supervened and he was obliged to go away. As soon, however, as his health had slightly improved he returned to the hospital, with the result that there was a second breakdown, followed by death on June 28th at his home in Welbeck-street after a week's confinement to bed.

Dr. Murrell was a prolific writer, chiefly on subjects connected with therapeutics and pharmacology, and his easy, fluent style and clear expression gained many readers. His best known books are "A Manual of Pharmacology and Therapeutics," "What to do in Cases of Poisoning," the demand for which was so great that it ran through ten editions, and "Masso-Therapeutics, or Massage as a Mode of Treatment," which was translated into German, French, and Russian. Besides these books he wrote a large number of papers for the medical journals and societies, and also did a certain amount of medical journalistic work, through the medium of which he was largely instrumental in exposing the scandalous massage establishments which at one time flourished in the West-end of London. At the time of his death Dr. Murrell, in addition to his appointments at Westminster Hospital, was a member of the Faculty of Medicine in the University of London, and an examiner to the Civil Service Commission and to the University of Aberdeen. He had formerly held examinerships in materia medica at the Universities of Edinburgh and Glasgow and at the Royal College of Physicians of London. In 1881 he was elected a laureate of the Academy of Medicine of Paris, and in 1887 he was one of the vice-presidents of the International Medical Congress held at Washington. For some years he was on the medical staff of the Paddington Green Children's Hospital, where he became senior physician.

THE NATIONAL INSURANCE ACT.

AN OPEN LETTER FROM MR. LLOYD GEORGE.

The Chancellor of the Exchequer has addressed the following letter to a medical correspondent:—

11, Downing-street, London, S.W., July 9th, 1912.

DEAR SIR,—In reply to your letter, I fully appreciate the anxiety which you and many other members of the profession feel as to the present position with respect to the Insurance Act. Such anxiety is only natural when those engaged in any calling are faced with such a great change in the conditions of work with which they are familiar as the Insurance Act must inevitably produce in the case of the medical profession. At the same time a great deal of the uneasiness at present felt by some members of your profession rests, I am sure, on misunderstanding of the position, and I shall be glad if, by this letter, I can do something to clear matters up.

In the first place I am surprised to learn that there is an impression in some quarters that the Government are not desirous of coming to terms with the doctors. This is entirely wrong. We have never wavered in our belief that the cordial coöperation of the medical profession is necessary in order that the best results may be obtained from the Insurance Act, and we are prepared to do all in our power to secure that coöperation. The only practical question is whether that coöperation can be secured by anything that it is in our power to do. Although public opinion will be most desirous that we should come to terms, it certainly would not countenance acceptance of every demand that might be made, and the same is true of Parliament.

Looking through the points originally put forward by the British Medical Association 12 months ago, it seems to me that substantially only two remain outstanding. The others have, I think, been in the main conceded, although in some cases adjustment may be desired in the framing of regulations, on which there should be little difficulty in coming to an agreement.

The two chief points that seem to me to be outstanding are the question of remuneration and the question of the income limit. As regards the subject of remuneration I have said—and I repeat—that the Government are prepared, as part of a general settlement, to recommend Parliament to increase the amount available for remuneration of those doctors who take part in the formation of panels. It is true that I have had to make clear that I did not expect to be able to meet the demands put forward by the British Medical Association for 8*s.* 6*d.* per head exclusive of drugs and of a long list of extras. I feel sure, however, that this demand was put forward without fully realising what it meant. In private practice doctors know the amount they receive from those they actually attend, and they find it difficult to realise what would be the effect on their income if they were paid a fixed sum per head per annum in respect of a large section of the population whether they actually attended them or not. I hope that the inquiry which Sir William Plender is now carrying out will serve to remove this cause of misunderstanding once and for all.

As to the income limit everything depends on what the demand of the profession on this point really means. The Government, supported by Parliament, held that this question must be settled locally, in order that due regard may be had to local conditions, and the Act is so framed accordingly. But, even if it were legal, the Government could not agree to the proposal that any powers conferred on the Insurance Commissioners should be exercised to coerce the Insurance Committees in the exercise of the discretion secured to them by the Act in this respect. So far as I can ascertain, no responsible political leader on either side has been prepared to support such a proposal.

I hope that, as I have suggested to the British Medical Association, the forthcoming Representative Meeting will appoint a committee with authority to negotiate with me in a practical spirit. I am convinced that it will be a misfortune both for the country and, if you will allow me to say so, not less for members of your profession, if we are unable to come to terms. I still believe that the most satisfactory way of working the medical service under existing conditions will be by the system of free choice of doctor by patients, with the various safeguards for the profession which were inserted in the Act at the request of the British Medical Association. If unfortunately this is found impracticable, I do not doubt that the insured will be able to obtain medical attendance, either under other arrangements made by Insurance Committees or by arrangements which they themselves will make by means of the money supplied from the Insurance Funds. But

I am convinced that if we were driven to this way of doing things it would not be so satisfactory from the public point of view, and it would certainly be less remunerative and in every respect less advantageous to the profession than the arrangements that we can make if we come to terms.

I am, &c.,

(Signed) D. LLOYD GEORGE.

ADMINISTRATION OF SANATORIUM BENEFIT.

The English Insurance Commissioners, after consultation with the Local Government Board, have just issued a memorandum (No. 112) for the guidance of Insurance Committees in commencing the administration of sanatorium benefit under the Act. The memorandum states that for the time being this benefit is confined to the treatment of tuberculosis among insured persons recommended by Insurance Committees. Treatment for purposes of sanatorium benefit may be given (*a*) in sanatoria, hospitals, or other residential institutions, or (*b*) at tuberculosis dispensaries (i.e., local centres for expert diagnosis and treatment), or other non-residential institutions, or in the patient's home. The duty of the Insurance Committees is, not themselves to provide institutions, but to make arrangements with suitable persons or local authorities for this purpose to the satisfaction of the Commissioners. The Act lays down that sanatorium benefit shall be available to insured persons from July 15th; but the memorandum explains that in most districts the full system of dispensaries, sanatoria, &c., which is in contemplation will not be available until some time after the commencement of the Act. Since this is evident, the Insurance Committees are instructed that, where and so far as the complete system outlined in the memorandum is not available, they must make temporary arrangements at the outset. To enable the committees to provide sanatorium benefit during the six months before the Act comes into full operation each committee will be credited with a sum equivalent to about £4 5*s.* per 1000 of the total population of its area. The majority of cases will have to be treated in dispensaries or at home, and even dispensaries cannot be in working order for some time to come. It is suggested that in those districts where a tuberculosis officer has not been appointed the medical officer of health should, with the consent of the county or county borough council, act temporarily as the expert adviser of the committee in dealing with individual applications for sanatorium benefit. Where a patient is waiting for admission to a sanatorium or hospital, treatment in a dispensary or home treatment by a private practitioner is recommended. The memorandum states in this connexion that arrangements for treatment by private practitioners may be made in various ways; for instance, where this course is found more convenient, the patient may be authorised to obtain from his own medical attendant such treatment as may have been sanctioned in his case by the Insurance Committee, to be provided at the cost of the funds of the Committee. The Insurance Commissioners and the Local Government Board concur in the belief that it is desirable that domiciliary treatment of cases of tuberculosis under the Act should be carried out so far as practicable by general practitioners acting in consultation with the local tuberculosis officers or other approved advisers.

NATIONAL MEDICAL UNION.

A general meeting of the National Medical Union was held on July 4th at the Onward Buildings, Deansgate, Manchester, Mr. G. A. Wright, the President of the Union, being in the chair.

The report of the General Committee, which had been circulated to the members, was taken as read, and the resolutions arising therefrom were debated.

Mr. C. R. O. Garrard (Salford), Mr. J. J. Bell (Bradford, Yorks), and others spoke in laudatory terms of the stand taken by the Union "in guarding the interests of the profession and in getting the British Medical Association to take up the firmer attitude which it has recently adopted," and it was unanimously resolved to carry on the militant work of the Union "in watching the interests of the profession, and in strengthening the British Medical Association in its determined opposition to the National Insurance Act as at present framed."

The meeting agreed that Mr. J. E. O'Sullivan, of Liverpool, a general practitioner, and a firm supporter of the policy of the Union, should be recommended as the third Representative of Lancashire and Cheshire on the Council of the British Medical Association.

The following resolution was carried unanimously:—

That the medical members of the Advisory Committee should at once resign their positions, as it was both useless and undignified to continue in office.

It was pointed out in this connexion that the *pourparlers* with the Chancellor of the Exchequer displayed his complete ignorance of medical practice, and that the negotiations were quite illusory.

A resolution was carried with acclamation to the effect that—

This Union considers the action of the Chancellor of the Exchequer in suggesting an inquisitorial investigation into the books of private practitioners is a piece of unparalleled impertinence, and calls on all members of the Union to refuse to have their books examined by any servant of the Government.

Another resolution which was passed expressed the conviction that it was anomalous that medical officers of health should be asked, or consent to allow themselves, to be elected on Local Insurance Committees. In this connexion it was mentioned that at a meeting of medical officers of health held in London recently it was proposed by Mr. Smith Whitaker that these officers, with the aid of assistants, should work the Act, but they refused to entertain any such proposal.

Dr. Reynolds thanked the members of the Union for their support in the recent Council election, and stated that he would not give way one iota in his opposition to the Act as it stands, and would unremittingly carry out the determined wishes of the profession.

The meeting desired, in view of the recent utterances of the Chancellor of the Exchequer and other members of the Government, to indicate to the Government, and to the public generally, the determined attitude of the medical profession in their decision to take no part in the working of the National Insurance Act until it is amended in accordance with their first demands, and for the benefit of the people whom it is supposed to serve. It was pointed out in the report presented to the meeting that a money payment in lieu of medical benefits not being an adequate return for the promises contained in the Act, the Government will break their contract with the insured if they pursue this policy, while it will remain with the employers of labour and the insured to deal with those who have made promises which it is impossible to fulfil.

Medical News.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the Second Professional Examination in Anatomy and Physiology, held on June 27th and 28th and July 1st and 2nd, 98 candidates presented themselves, of whom 48 were approved and 50 were referred. The following are the names of the successful candidates:—

John Gordon Ackland, William Guy Embleton Allen, and John Andrew, St. Bartholomew's Hospital; Arthur Lawrence Anthony, Guy's Hospital; James Dorrington Bangay, St. Bartholomew's Hospital; Percival Cheal and Hugh Collins, London Hospital; Eleyathamby Coomaraswamy, Ceylon Medical College and Middlesex Hospital; Edmund Sheppard Cuthbert, St. Bartholomew's Hospital; Ernest Ivon Davies, University College, Cardiff; George Stanley Deane, London Hospital; Lionel Basil de Kretser, Ceylon Medical College and Middlesex Hospital; Stanley Ernest York Elliott, St. Mary's Hospital; Cuthbert Lindsay Emmerson, St. Bartholomew's Hospital; Moustafa Fahmy, Cairo and London Hospital; Luis Hernando Garces and William Tudor Gwynne-Jones, London Hospital; George Harris Haines, University College; Douglas Noel Hardcastle, St. Mary's Hospital; Lancelot Horsley, Guy's Hospital; Gerald Patrick Kidd, St. Thomas's Hospital; Noel Sigismund Koch, St. Bartholomew's Hospital; Gajanan Chintaman Kusumbeker, L.M. & S. Bombay, Bombay University and University College; Gerald Struan Marshall, Charing Cross Hospital; Archibald Daniel Marston, Guy's Hospital; Donald Samuel Eccles Milligan and William Hubert Milligan, St. Thomas's Hospital; Elizabeth Morse, London School of Medicine for Women; Alfred William North, Birmingham University; Thomas Owen, Cambridge University and St. Bartholomew's Hospital; Cuthbert Felix Oliver Panditheseker, Ceylon Medical College and Middlesex Hospital; Maurice Pearson, Guy's Hospital; Vishwanath Damodar Phatak, Bombay University and Middlesex Hospital; Isabel Quanbrough, L.M. & S. Bombay, Bombay University and Royal Free Hospital; Charles Harley Savory, Cambridge University and St. Bartholomew's Hospital; John Godfrey Bradley Smith, St. Bartholomew's Hospital;

Cecil Spurling Staddon and William Fletcher Stiell, St. Thomas's Hospital; Ramon Romero Sy-Quia, London Hospital; Gordon Stuart Terry, Bristol University; Donald Carmichael Thomas, St. Thomas's Hospital; Charles Tolmie Tresidder, St. Bartholomew's Hospital; Bryan Montague Tuke, Middlesex Hospital; Frank Hamilton Vey, B.A. Cantab., Cambridge University and St. Thomas's Hospital; Jose Victory, Guy's Hospital; William Godfried Lorenz Wambeek, Ceylon Medical College and University College; Felix Evan Weerasooria, L.M. & S. Ceylon, Ceylon Medical College and Middlesex Hospital; and Karl Johan Frederick Westman, Guy's Hospital.

UNIVERSITY OF LEEDS.—At a Congregation of the University held on June 29th the following degrees were conferred :—

M.B., B.S.—G. P. Mellis (first-class honours), L. Dunbar, J. Ferson, and G. W. L. Kirk (all with second-class honours).
Diploma of Public Health.—D. F. Dobson.
Diploma in Psychological Medicine.—J. M. Noyes and E. A. Waldron.

FINAL M.B., CH.B.

Part I.—E. Hesterlow and W. D. A. King.

SECOND M.B., CH.B.

Part I.—R. H. Chadwick, D. A. P. Clarke, A. S. Hebblethwaite, and C. H. Seville.
Part II.—Jane Bamford, H. Franklin, H. M. Holt, W. L. Ingham, C. E. Leake, J. Liberman, W. H. Lonen, J. Rosencwige, Jessie Smith, R. S. Topham, Augusta Umanski, and F. Walton.
L.D.S. (First Professional Examination).—D. B. Clubb.
Diploma in Public Health.—Part I.: G. O. Chambers and E. A. Waldron.

UNIVERSITY OF ABERDEEN.—The following degrees were conferred on July 9th :—

Degree of M.D.—George Spencer Melvin, John Abernethy Beattie, Robert Maxwell Chance, Andrew James Shinnie, David James Shirres Stephen, David Main Baillie, Andrew Leslie Edmund Filmer Coleman, Henry George Deans, Adam Gray, George Michie, William Robert Colvin Middleton, James Mitchell, Henry Watson Smith, and George Irvine Thompson Stewart.
Degrees of M.B., Ch.B.—David Sutherland Badenoch, William Forbes Beattie, Martin Melvin Cruickshank, Ratán Edulji Dastur, Elizabeth Mary Edwards, Alexander Fowlie Fraser, William John Sivewright Ingram, Sydney Walker Lund, Edgar Alan Pearson, Arthur Charles Mears Savege, John Shaw, Charles Wilson Weir, and John Wood.
The John Murray Medal and Scholarship (awarded to the most distinguished graduate (M.B.) of 1912) was presented to Richard Reginald Maitland Porter, M.A., M.B., Ch.B. Aberd.

The Diploma in Public Health was also conferred on :—

John Brown, Edward Wood Wood-Mason, Herbert Stewart Milne, and James George Muterer.

UNIVERSITY OF DURHAM.—At examinations held recently the following candidates were successful :—

THIRD EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICINE.

Materia Medica, Pharmacology and Pharmacy, Public Health, Medical Jurisprudence, Pathology, and Elementary Bacteriology.—Honours, Second Class: Cyril Armstrong, College of Medicine, Newcastle-upon-Tyne. Pass list: Ishmael Gustavus Cummings, Charles Norman Glover, Mary Lyle Haigh, Maurice Henry de Jersey Harper, Cyril Jacobs, Robert Rutherford Lishman, Edward Rowland Alworth Merewether, Francis Metcalfe, Ernest Charles Gilchrist Parker, Ivan Miller Pirrie, and Kirton Ivor Seager Smith, College of Medicine, Newcastle-upon-Tyne; Charles Rees Smith, Guy's Hospital and College of Medicine, Newcastle-upon-Tyne; and James Calvert Spence, College of Medicine, Newcastle-upon-Tyne.
Public Health, Medical Jurisprudence, Pathology, and Elementary Bacteriology.—Edward Phillips, London Hospital.

FOREIGN UNIVERSITY INTELLIGENCE.—*Algeria Medical School:* Dr. Soulie has been appointed Professor of General Pathology and Microbiology, and Dr. Trabut Professor of Natural History and Parasitology.—*Berlin:* Dr. Gottschalk has been appointed Director of the Gynæcological Policlinic of the Jewish Hospital, in succession to Dr. Bruno Wolff. Dr. Artur Pappenheim, honorary assistant in the Second University Medical Clinic, has been granted the title of Professor in recognition of his researches on the Blood.—*Christiania:* Dr. Kristine Bonnevie has been appointed to the chair of Zoology. This is the first time a lady has been appointed to a Professorship in Norway.—*Dresden Technical University:* Dr. L. Lange, *privat-docent* of Bacteriology, has been promoted to an Extraordinary Professorship.—*Freiburg:* Dr. J. Schlimpert has been recognised as *privat-docent* of Gynæcology and Midwifery, and Dr. P. Trendelenburg as *privat-docent* of Pharmacology.—*Heidelberg:* Dr. Schreiber, *privat-docent* of Ophthalmology, has been promoted to an Extraordinary Professorship; Dr. Karl Franke has been recognised as *privat-docent* of Surgery.—*Königsberg:* Dr. Kallius has declined the offer of the chair of Anatomy at Greifswald.—*Munich:* Dr. Hueck has been recognised as *privat-docent* of Pathological Anatomy.—*Toulouse:* Dr. Bardier, *agrégé*, has been promoted to the chair of Experimental Pathology in succession to Dr. Maurel, retired; Dr. Frenkel, *agrégé*, has been promoted to the chair of Clinical Ophthalmology.—*Vienna:* Dr. Julius Zappert has been appointed *primarius* of the new Jewish Hospital; Dr. Leopold Moll, of Prague, has been recognised as *privat-docent* of Children's Diseases.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—A meeting of the Fellows of the College was held on July 4th for the election of four members of Council. Three of the members of Council were retiring in rotation, Sir Frederic S. Eve, Sir Anthony A. Bowlby, and Mr. H. G. Barling, and there was a fourth vacancy owing to the death of Sir Henry Butlin. For these four vacancies there were seven candidates; the three retiring members offered themselves for re-election, and the other candidates were, in order of seniority, Mr. J. Ernest Lane, Mr. D'Arcy Power, Mr. L. A. Dunn, and Sir B. G. A. Moynihan. There were 886 postal votes and 10 Fellows voted in person; two unsigned voting papers were received, which had to be rejected, and 8 arrived after the commencement of the election. The result of the election was as follows :—

	Votes.	Plumpers.
Sir Anthony Bowlby	507	3
Sir Frederic Eve	427	23
Mr. D'Arcy Power	405	19
Sir B. G. A. Moynihan ...	394	17
Mr. H. G. Barling	387	7
Mr. J. Ernest Lane	339	49
Mr. L. A. Dunn	255	45

The President declared that Sir Frederic Eve and Sir Anthony Bowlby were re-elected, and that Mr. D'Arcy Power and Sir B. G. A. Moynihan were elected members of the Council.

DONATIONS AND BEQUESTS.—Under the will of the late Mrs. Louisa Darell-Brown, subject to her husband's life interest, the testatrix left £12,000 to the St. Catherine's Clun Valley Cottage Hospital, Salop.—By the will of Mr. Arthur Bolden Davison the testator left £1000 each to the Royal National Lifeboat Institution, the Brompton Cancer Hospital, the Brompton Hospital for Consumption, the National Hospital for the Paralysed and Epileptic, and the Hospital for Diseases of the Skin.

THE OXFORD OPHTHALMOLOGICAL CONGRESS.—The next meeting of this Congress will take place on Thursday and Friday, July 18th and 19th, at Keble College, Oxford. There will be an informal dinner in Keble Hall on Wednesday, July 17th. Medical men, when intimating to the secretary, Mr. Sydney Stephenson, 33, Welbeck-street, London, their intention to be present, should enclose the attendance fee of half a guinea and state whether they desire to reserve rooms in Keble College, the charge for board and lodging being 7*s.* 6*d.* per diem. The Congress will be opened at 10 A.M. on Thursday, July 18th, when addresses will be delivered by Dr. S. E. Whitnall, of Oxford, on Some Points in the Anatomy of the Orbit; by Professor Straub, of Amsterdam, on an Ophthalmological Contribution to the Doctrine of Scrofulosis; and by Dr. W. B. Marple, of New York, on Tubercle of the Choroid, particularly in Cases of Tuberculous Meningitis. From 10 to 1.30 there will be demonstrations and a museum of exhibits in the department of Physiology, and in the afternoon at 2.30 operations and demonstrations of cases at the Eye Hospital. At 4.30 P.M. tea in New College garden, followed by a visit to the colleges. At 7.30 P.M. the official dinner to the Congress will be held in Keble Hall, with the Rev. W. Lock, D.D., Warden of Keble, in the chair, followed by dessert in the Junior Common Room of the College. On Friday, July 19th, an address will be delivered by Dr. Hanford McKee, of Montreal, on the Etiological Factor and Pathological Lesions in some of the Inflammatory Conditions of the Conjunctiva (with lantern demonstration); and one by Dr. Thomson Henderson, on the Principles of the Comparative Anatomy and Mechanism of Accommodation. The addresses will be followed by demonstrations and exhibits as on Thursday. At 2.30 P.M. there will be a discussion at the Eye Hospital on Coal Miners' Nystagmus (Neurosis), opened by Dr. T. Harrison Butler, of Leamington. Tea at the Eye Hospital will be followed by dinner in Keble Hall and a smoking concert in the Junior Common Room of the College. On Thursday afternoon at the Eye Hospital Mr. Charles

Higgens will demonstrate a simple method of removing cataract; Mr. N. Bishop Harman, the Operation of Subconjunctival Reefing or Advancement for Strabismus; Dr. Van Lint, of Brussels, the Sliding-flap Operation in the Removal of Cataract; Dr. A. Nimmo Walker, the G. E. Walker Operation of Kerotomy; and Dr. Harrison Butler, the Excision of the Lacrymal Sac. On Saturday, July 20th, a launch will leave Folly Bridge, Oxford, at 9.30 A.M., reaching Reading at 5.25 and Henley at 7 P.M.

RESEARCH DEFENCE SOCIETY.—The Research Defence Society has issued a letter signed by Sir David Gill, President; the Hon. Sydney Holland, chairman of committee; Dr. F. M. Sandwith, treasurer; Sir Luke Fildes, R.A.; Sir William Ramsay; Mrs. Scharlieb, M.D.; and Lord Robert Cecil, exposing the tactics of antivivisection societies in the matter of their revolting exhibitions in shop windows, and appealing for funds to combat these tactics. Subscriptions, made payable to the honorary treasurer, should be sent to 21, Ladbroke-square, London, W.

THE LONDON SCHOOL OF TROPICAL MEDICINE: AN APPEAL FOR £100,000.—At the request of the Right Hon. L. Harcourt, Secretary of State for the Colonies, a committee has been formed to raise funds for the extension and development of the London School of Tropical Medicine. In order to provide a modest but adequate endowment fund, to make necessary additions to the laboratories and buildings for the accommodation of the growing number of students, to provide for the active prosecution of research, and to establish a small nursing home for civilians who cannot afford to procure for themselves the special medical and surgical treatment and nursing required in these very special branches of disease, a sum of £100,000 is now required, and it is to raise this sum that the present appeal is made. A meeting of the influential committee which has been formed in connexion with the appeal will be held at the Foreign Office, on Wednesday, July 17th, at 4 P.M., Mr. Austen Chamberlain presiding.

LONDON HOSPITAL MEDICAL COLLEGE.—On July 1st a very large gathering assembled at the London Hospital, when the Earl of Rosebery presented the prizes to the successful students. Mr. Douro Hoare (chairman of the College Board) presided, and in opening the proceedings referred to Lord Rosebery, whose address was commented upon in an annotation in THE LANCET of July 6th, as having played an important part in politics, literature, and sport, but whom they welcomed more especially as Chancellor of the University of London, of which he hoped the London Hospital Medical College was one of the most successful parts. The Dean, Mr. William Wright, in making a report on the year's work, said it was gratifying to know that despite the excursions and alarms to which the elder members of the profession had been, and, indeed, still were, subjected, the number of students at the London Hospital was more than maintained, while the academic distinctions which had been obtained were even above the high average of the school. Mr. H. W. L. Molesworth had obtained marks of distinction in the three subjects of the first medical examination, and Mr. A. G. Harsant, a dental student, in two out of the three subjects. Mr. Llewellyn Jones obtained distinction in anatomy and physiology and Mr. A. C. Perry in all three subjects of the second part of the second M.B. examination; in the latter examination only four marks of distinction were awarded, Mr. Perry obtaining no less than three of these. He also won the "Begley" studentship of the Royal College of Surgeons of England. In the final M.B. examination marks of distinction in medicine were obtained by Mr. Gushue-Taylor and Mr. E. Parry Evans. In the examination for admission to the Indian Medical Service Mr. R. H. Candy obtained the first place. The dean then alluded to the financial position of the College, which he stated was considerably stronger than it was a year ago, the Endowment Fund having been increased during the year by a sum of £800 to £7500; but as this sum only added about £300 to the annual income it was very desirable that this fund should be still more materially increased. The annual grant from the Board of Education for the ensuing year was £4300. The grant meant great obligations and responsibilities which were fully recognised and appreciated. Already a number of small reforms had been made in the College, and he hoped the coming year would see more important changes. The Dean also referred to the dental school, which he said had been so great a success that the question of extension must soon be considered. A vote of thanks was proposed by the Earl of Derby (treasurer of the hospital) and seconded by the Hon. Sydney Holland (chairman of the hospital) and Sir Bertrand Dawson (chairman of the medical council). The distribution of prizes was followed by a garden party in the hospital grounds.

MEDICAL MAGISTRATES.—The following members of the medical profession have just been placed on the commission of the peace for Sussex:—Dr. John Elsdale Molson, Goring, Worthing; Dr. William Alfred Wills, Stedham, Midhurst; Mr. Ethelbert Hosking, Turner's Hill; Mr. John Woolnough George Prince, Hartfield; Dr. Barrington William Mudd, Storrington; and Mr. Robert Eardley-Wilmot, Petworth.

PRESENTATION TO A MEDICAL PRACTITIONER.—At the annual meeting of the Stockport, Macclesfield, and East Cheshire division of the British Medical Association Dr. John Brierley Hughes, the secretary of the division, was presented on behalf of its members with a silver rose-bowl as an acknowledgment of the valuable services rendered during the past five years, and particularly of his discharge of the onerous duties devolving upon him in connexion with the Insurance Act.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Select Committee on Patent Medicines.

THE Select Committee of the House of Commons on Patent Medicines heard further evidence on Thursday, July 4th. Sir HENRY NORMAN was in the chair.

Mr. E. F. HARRISON, the analyst, was further examined as a witness. In answer to Mr. GLYN JONES he said that the reason for asking that a disclosure of the ingredients in secret remedies was that the public would be less inclined to believe exaggerated claims made in respect of them.

Mr. GLYN JONES: Where does a medical man get his experience of therapeutics in the first instance?

Mr. HARRISON: From the text-books and from his professors and teachers.

Mr. GLYN JONES: That knowledge is open to anyone who can read and understand the text-books?

Mr. HARRISON: Yes.

Mr. GLYN JONES: The sources of the knowledge as to therapeutic use are equally open to pharmacists?

Mr. HARRISON: Yes.

Sir PHILIP MAGNUS: But a medical teacher does not rely entirely upon the statements in text-books?

Mr. HARRISON: Certainly not. Many of the text-books are written by medical teachers and professors.

The CHAIRMAN: That is not a fair question to put to Mr. Harrison. It can only be answered by a medical man. You are not prepared to answer on behalf of the medical profession?

Mr. HARRISON: I am not.

Mr. GLYN JONES: Do medical men who dispense their own medicines add to their income by selling or purveying drugs at a high rate of profit?

The CHAIRMAN: That is a question which should be addressed to a medical man.

Mr. GLYN JONES: Do you think that a mixture of sugar and water could be launched at a popular price as a paying proprietary medicine?

Mr. HARRISON: I think that it could.

Mr. GLYN JONES: And continue for some length of time?

Mr. HARRISON: Yes. There was a cancer cure which existed for many years, and was composed of sugar and water.

In reply to Mr. CHARLES BATHURST, Mr. HARRISON said that it would be most advantageous from the public point of view to have the principal ingredients of patent medicines declared on the label, and certainly all poisons contained in the mixtures ought to be thus revealed and the quantities stated. However, he could understand, from the point of view of the proprietor of the preparation, it might be an injustice to print the whole formula, as thus a valuable trade secret might be given away.

Answering the CHAIRMAN, Mr. HARRISON stated that he had discovered no new drug in his analyses of these secret remedies. Many of them were of a kind which could be made in a back room by anyone who bought a few drugs in the open market and had the use of a pair

of scales and a water-tap. His researches had shown the existence of deliberate fraud on a large scale, and he thought that remedial legislation should be introduced to check it.

Dr. MARY STURGE, of Birmingham, was the next witness, and spoke on behalf of the British Medical Association in regard to medicated wines and digestive tonics. Many of those preparations as sold now contained a very large proportion of alcohol. In some cases it was as high as 20 per cent. These preparations were used by persons who were entirely ignorant of their alcoholic strength. In some cases she knew that they had been the cause of the formation of the alcohol habit.

Mr. H. LAWSON: Do you think there are a great many people who buy medicated wines and do not know there is alcohol in them?

Dr. STURGE: That is so.

Mr. LAWSON: And you think that in regard to all wines, whether medicated or not, the amount of alcohol ought to be stated before it was sold to the public?

Dr. STURGE: I think that would be a great advantage to the public.

The Committee adjourned.

Deaths and Burials Bill.

The text of the Deaths and Burial Bill which Mr. GEORGE GREENWOOD recently introduced in the House of Commons has been printed. In a memorandum it is stated that the object of the measure is to give effect to the principal recommendations put forward in 1893 by the Select Committee on Death Certification and is intended to guard against (1) crime and (2) premature burial. It is pointed out that during the years 1907–1910 inclusive there were 35,418 deaths in England and Wales, the causes of which were not certified. Clause I. of the Bill proposes to prohibit the registry of death where there is no proper certification. In cases where no medical man has been in attendance on the deceased person "a public certifier of deaths"—who must be a qualified medical man—must be called in to inspect the body and send to the registrar a proper certificate as to the cause of death.

The Inebriates Bill.

The Inebriates Bill was read a second time in the House of Commons on Tuesday, July 9th.

HOUSE OF COMMONS.

WEDNESDAY, JULY 3RD.

The Death-rate amongst Children.

Mr. ARMITAGE asked the President of the Local Government Board whether he would state the death-rate amongst children of 6 to 10 years of age, distinguishing, if possible, between boys and girls, during each of the years 1901 to 1910, both inclusive.—Mr. BURNS wrote in reply: I have obtained the following particulars from the Registrar-General. The mortality in England and Wales during the years 1901–10 among children aged 5 to 10 years was as follows:—

Year.	Rate per 1000 living aged 5 to 10 years.		
	Persons.	Males.	Females.
1901	4·0	4·0	4·1
1902	4·0	3·9	4·1
1903	3·5	3·4	3·5
1904	3·5	3·5	3·5
1905	3·4	3·4	3·4
1906	3·5	3·4	3·6
1907	3·4	3·3	3·4
1908	3·2	3·2	3·2
1909	3·3	3·2	3·3
1910	2·9	2·9	2·9

The above rates are subject to correction when the results of the 1911 census are fully ascertained. The Registrar-General is unable to state the mortality among children aged 6 to 10 years.

Forcible Feeding.

Mr. GOLDMAN asked the Secretary of State for the Home Department whether he received on June 27th a communication signed by Sir Victor Horsley, Mr. Arbuthnot Lane, Professor Halliburton, and 117 medical practitioners, protesting against the practice of forcible feeding when that operation was resisted by the patient on the ground that, in their opinion, it was accompanied by immediate risk of life in addition to the danger of permanent damage to the health both of body and of mind, and whether he proposed to discontinue and end the practice.—Mr. MCKENNA, in a written answer, replied: I have received the memorial referred to, but as the memorialists are unable to suggest any alternative method by which prisoners who refuse food can be prevented from committing suicide, I am unable to attach much weight to their representations. I may add that I have received another memorial signed by most distinguished medical men stating that feeding by tube, if carried out in accordance with the usual rules of procedure, is neither dangerous nor painful. The compulsory feeding of recalcitrant prisoners is a most unpleasant process, extremely distasteful to those whose duty it is to carry it out, and everything is done by the medical staff of the prisons to avoid it where possible, and when it is necessary to guard against any risk to health and to minimise the discomfort to the prisoner.

The Tube-feeding of Suffragist Prisoners.

Mr. KEIR HARDIE asked the Secretary of State for the Home Department whether the tube-feeding of suffragette prisoners in the different prisons was being done by fully qualified medical men, and if so, what were the names and qualifications of those gentlemen.—Mr. MCKENNA wrote in reply: The compulsory feeding of prisoners is in each prison carried out by the medical officers, who are always fully qualified medical men. In one or two cases they have had the assistance of medical men not in the prison service who were also fully qualified. I place entire confidence in the discretion of these gentlemen and their ability to perform the duties required of them, and I do not think it is desirable to give prominence to their names by mentioning them here.

THURSDAY, JULY 4TH.

Medical Men and the Insurance Act.

Sir PHILIP MAGNUS asked the Secretary to the Treasury whether he would say what steps he proposed to take in the event of the Insurance Commissioners failing to make any agreement with the doctors, and consequently determining to pay each insured person a fixed sum per annum, say 6s., in lieu of free medical attendance, to secure to the insured contributor efficient medical attendance during sickness after the year's grant of 6s. had been expended on doctor's visits and in payment for drugs.—Mr. MASTERMAN replied: Refusal of the medical profession to make a collective agreement with the Insurance Commissioners would not necessarily entail the consequences specified in the question. Other courses are possible under the Act. In any event, the sum of 6s. per head per annum would enable the insured persons to remunerate the medical men who attend them at a considerably higher rate for the same services than they have given them in the past. But it would be premature at this moment to discuss various possible alternative schemes to the panel system which is contemplated in the Act.

Sir PHILIP MAGNUS: Does the right honourable gentleman think that a grant of 6s. for an insured person is the equivalent of free medical attendance and medicine?

Mr. MASTERMAN: The poor insured person in all the great Friendly Societies has obtained free medical attendance and medicine for an average of something like 4s. per head.

Viscount HELMSLEY: Is it proposed in the event of failure to agree with the medical profession to give each insured person a sum of 6s., whether or not he requires medical attendance in the course of the year?

Mr. MASTERMAN: I would not commit myself to the sum of 6s. There are other alternatives. There is a possibility, if medical benefits are suspended, that a certain sum will be given to every person, whether he requires medical attendance or not.

Viscount HELMSLEY: How many medical visits is an insured person expected to receive for 6s.?

Mr. MASTERMAN: That does not arise out of the question.

Mr. GRANT: Did not the Chancellor of the Exchequer clearly assert from his place in the House that without the coöperation of the medical profession this Act would be ineffective, and if that is so, will the Government consider the advisability of postponing the collection of contributions until they have secured that coöperation?

Mr. MASTERMAN: I do not remember my right honourable friend using those words. Of course, we are making every effort to obtain the coöperation of the medical profession on terms compatible with the amount of money which we can ask the House of Commons to vote for such a purpose.

Mr. BARNES: Will 6s. be given back to the insured person or will it be put to his credit?

Mr. MASTERMAN: Either of those courses is possible. In the last resort, if no other course is possible, 6s., or some sum to which I do not commit myself, will be given to every insured person, which is 9d. for every 4d. which he has paid in for medical benefit.

Sir P. MAGNUS: Will the right honourable gentleman say how the giving of 6s. to every insured person will benefit a sick person who requires medical attendance over a protracted period?

Mr. MASTERMAN: I do not want to have to state things over and over again. Up to now the bulk of the working classes of this country have been able to obtain medical attendance and medicine for 4s. a year. Now we are giving them at least 6s. a head.

The Purification of Rivers.

Mr. HUNT asked the President of the Local Government Board whether the Royal Commission on Sewage Disposal had concluded its labours; and if the Board were now in a position to promote further legislation for the treatment of sewage before being discharged into the rivers.—Mr. BURNS replied: The answer to the first part of the question is in the negative. I am considering the question of promoting legislation to give effect to the recommendations which the Commission has already made.

Small-pox Hospitals.

Sir FRANCIS LOWE asked the President of the Local Government Board whether his attention had been drawn to the protests made against the action of his department in keeping up a number of small-pox hospitals which were never likely to be again required; and whether he would consider the advisability of some steps being taken to do away with or greatly reduce the expenditure, amounting to about £20,000 a year, which this involved.—Mr. BURNS wrote in reply: My attention has not been drawn to any such protests as are referred to. Small-pox hospitals are maintained by local authorities and not by my department, and I do not think it can be said that they are never likely to be again required for the purpose for which they were provided. In recent years such outbreaks as have occurred have been brought under control very promptly, and small-pox hospitals have formed an indispensable part of the machinery required for this purpose. I may say that I have encouraged local authorities to use their small-pox hospitals, subject to suitable safeguards, for the treatment of cases of pulmonary tuberculosis and other purposes when they are not required for small-pox and when they are suitable, and I know a number of cases in which local authorities are so using these hospitals.

District Nursing and the Insurance Act.

Mr. AUBREY HERBERT asked the Secretary to the Treasury whether district nursing as such would come under the heading of sickness benefit, medical benefit, or whether it would be considered as an additional benefit.—Mr. MASTERMAN furnished the following written reply: The Commissioners have not yet prescribed on which specific

benefit or benefits any grants made by approved societies or insurance committees shall be treated as having been expended.

Mr. AUBREY HERBERT also asked the right honourable gentleman upon what conditions grants to district nursing associations could be given under the National Insurance Act, and the date when the amounts of such grants would be made known to the various district nursing associations who elected to serve under the scheme.—Mr. MASTERMAN gave the following written answer: Under Section 21 it is lawful for an approved society or Insurance Committee to grant subscriptions or donations in support of district nurses. It is not possible at present to make any statement as to what use they will make of this power.

Mr. AUBREY HERBERT further asked the right honourable gentleman whether district nursing associations who accepted grants from the Insurance Committees or from approved societies would be exempted or not from the operation of the National Insurance Act.—Mr. MASTERMAN (in a written answer) replied: I do not understand what form of exemption the honourable Member has in mind. District nursing associations cannot be relieved of their obligations under the Act as employers on the ground that they are in receipt of such grants as those mentioned.

Phthisis and Housing.

Lord HENRY CAVENDISH-BENTINCK asked the Chancellor of the Exchequer whether he was aware that it appeared in the report of the Registrar-General for 1909, that 10 out of 13 counties showing the highest death-rate from phthisis were Welsh; and whether, as this death-rate in the Welsh counties was due to a high rate of female mortality, and in view of the effect of defective housing conditions in producing this state of things, he would reconsider, under these circumstances, his refusal to grant half a million from the Exchequer, as proposed by the Bill of the honourable Member for Dudley (Sir A. Griffith Boscawen), to local authorities to enable them without delay to provide a remedy for this social evil.—Mr. BURNS wrote in reply: The Chancellor of the Exchequer has asked me to reply to this question. I am aware of the figures which the noble lord quotes. It is true that, taking Wales as a whole, the female phthisis death-rate is higher than the male rate, unlike the experience of England, but the causes underlying this difference are not altogether clear. On the latter part of the question I may say that, while my right honourable friend is very anxious to develop better housing conditions, he agrees with me that the proposal embodied in the Bill of the honourable Member for Dudley does not provide the remedy.

Metropolitan Ambulances.

Mr. STEPHEN COLLINS asked the Secretary of State for the Home Department whether he was prepared to sanction the coöperation of the Metropolitan police in carrying out the powers entrusted to the London County Council by the Metropolitan Ambulances Act, 1909; and whether he had had any communication with the County Council on the question.—Mr. MCKENNA furnished the following written reply: I can only repeat what my predecessor said in 1910, that if any proposal for the coöperation of the police is made I shall be glad to consider it with every wish to do whatever may be practicable. I have had no communication from the London County Council on the subject.

MONDAY, JULY 8TH.

Sanatorium Benefits.

Mr. WRIGHT asked the Secretary to the Treasury whether he had any information as to how many doctors in the United Kingdom and Ireland had experience in the treatment of tuberculosis; and how many of such doctors had been engaged, provisionally or otherwise, by county and county borough insurance committees, provisional or otherwise, and by which committees, to administer as from July 15th, 1912, the sanatorium benefits to those insured persons entitled to such benefits as from that date.—Mr. MASTERMAN replied: Most registered medical practitioners have had experience of the treatment of tuberculosis. There are no data for estimating the number of those who have had special experience and possess special skill. In reply to the second part of the question the engagement of medical practitioners to attend insured persons suffering from tuberculosis will not usually be the function of insurance committees, and, so far as it falls within their province to make such arrangements they will be made as occasions arise. I am forwarding to the honourable Member a copy of the memorandum issued on Saturday to Insurance Committees in which the arrangements contemplated are fully explained.

Pharmaceutical Chemists in Scotland and the Insurance Act.

Mr. WALTER GUINNESS asked the Chancellor of the Exchequer to state what official status had a body calling itself the National Health Insurance Pharmaceutical Standing Committee (Scotland); were individual pharmacists debarred from intimating direct to the Insurance Commissioners their ability or willingness to undertake pharmacy work under the Act or their readiness to submit proposals, or must they make applications to be placed on local panels for pharmacy service (Scotland) through the National Health Insurance Pharmaceutical Standing Committee (Scotland), and should a pharmacist ignore circulars which the National Health Insurance Pharmaceutical Standing Committee (Scotland) were issuing and not forward his name to this committee, would he be passed over when the arrangements with local pharmacists were made; were the Insurance Commissioners asking voluntary contributions to defray expenses of circularising chemists, &c.; and, if the National Health Insurance Pharmaceutical Standing Committee (Scotland) had no official standing, would instructions be issued to the Commissioners to ignore any list of local panels for pharmacy service in Scotland that might be submitted to them by that committee.—Mr. MASTERMAN wrote in reply: "The Pharmaceutical Standing Committee (Scotland) on National Health Insurance" has no official status. Under Section 15 (5) it will be the duty of the Insurance Committee in each area to make arrangements, subject to the regulations of the Commissioners and the Joint Committee, for the supply and dispensing of drugs and medicines. The panel of chemists will be prepared by the Insurance Committees, subject to appeal to the Commissioners, and due consideration would be given to any representations made either by any committee of chemists or by individual chemists. Section 15 of the Act secures the right of every duly qualified chemist to be placed upon a panel. The Commissioners have issued no circular to chemists, and have asked for no voluntary contributions from them.

Grant Medical College, Bombay.

Mr. REDDY asked the Under Secretary of State for India whether two new professorships had been created at the Grant Medical College, Bombay, the intention being that these posts should be open to Indians, but that conditions debarring from private practice, wholly novel, had been imposed which made it impossible for highly-qualified Indian medical men to compete for those appointments; and whether he would issue instructions to those responsible to remove all such restrictions and ensure that high medical qualifications should be the only test for these and similar appointments.—Mr. MONTAGU (in a written answer) replied: I understand that the creation of two professorships at the Grant Medical College is in contemplation by the Government of India, who have not, however, yet submitted proposals to the Secretary of State. Until their proposals are before the Secretary of State, I am not in a position to enter into a discussion of the terms of appointment, but I may mention that there is nothing novel in debarring professors at medical colleges in India from private practice. I have telegraphed to the Government of India asking when their proposals may be expected.

WEDNESDAY, JULY 10TH.

The Medical Profession and the Insurance Act.

Sir PHILIP MAGNUS asked the Secretary to the Treasury whether, with reference to the letter of the Insurance Commissioners of June 26th, in reply to that of the British Medical Association of Feb. 29th, in which the Commissioners stated that the Government would be willing, if assured of the coöperation of the medical profession, to advise Parliament to make extra provision for meeting the cost of medical benefit, he would now state the amount of extra provision which the Government was prepared to ask Parliament to sanction.—Mr. MASTERMAN replied: The subject is under consideration and no statement can at present be made on the subject.

Sir PHILIP MAGNUS asked the right honourable gentleman to say what steps the Government proposed to take to exclude those persons possessing an income exceeding £160 a year from free medical treatment who, under the National Insurance Act, were entitled to that benefit, having regard to the statement of the Commissioners in their letter of June 26th that the Government recognised that this was a special case for consideration.—Mr. MASTERMAN replied: The Government have undertaken to consider any suggestions put before them in reference to this matter. No such suggestions have as yet been made. It would therefore be premature to make any statement.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BEATTIE, JAMES MARTIN, M.D. Edin., has been appointed to the Chair of Bacteriology in the University of Liverpool.

DAVIES-COLLEY, H., M.C. Cantab., F.R.C.S. Eng., has been appointed Fifth Assistant Surgeon to Guy's Hospital.

KINGDON, E. O., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Holsworthy District of the county of Devon.

MATHIAS, C. D., M.B., B.C. Cantab., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Tenby District of the county of Pembroke.

PARAKH, F. R., M.D., B.S. Vict., L.R.C.P. Lond., M.R.C.S., L.M. R.C.P. Irel., has been appointed Honorary Obstetrician and Gynæcologist to the Parsi General Hospital and Consulting Gynæcologist to the Bacterio-Therapeutic Institute, Bombay.

STANLEY, E. GERALD, M.B., B.S. Lond., F.R.C.S. Eng., has been appointed Demonstrator of Anatomy at St. Bartholomew's Hospital.

STEWARD, F. J., M.D. Lond., F.R.C.S. Eng., has been appointed Senior Assistant Surgeon to Guy's Hospital.

SYMONDS, C. J., M.D., M.S. Lond., F.R.C.S. Eng., has been appointed Consulting Surgeon to Guy's Hospital.

TAYLOR, JAMES GEORGE, M.D. Cantab., has been appointed one of the Medical Referees under the Workmen's Compensation Act, 1906, for County Court Circuit No. 29, to be attached more particularly to Chester, Mold and Flint, and Holywell County Courts.

THYNE, W., M.D. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Medbourne District of the county of Leicester.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

AYR DISTRICT ASYLUM.—Junior Assistant Physician. Salary £140 per annum, with board, lodging, and laundry.

BANBURY, HORTON INFIRMARY.—House Surgeon. Salary £80 per annum, with board and residence.

BANGOR, CARNARVONSHIRE AND ANGLESEY INFIRMARY.—House Surgeon. Salary £100 per annum, with board, lodging, and washing.

BARNES ISOLATION HOSPITAL.—Medical Officer of Health and Superintendent. Salary £325 per annum.

BARNSLEY, BECKET HOSPITAL AND DISPENSARY.—Second House Surgeon, unmarried. Salary £100 per annum, with apartments, board, and laundry.

BIRKENHEAD BOROUGH HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with board and laundry.

BIRMINGHAM INFIRMARY, Dudley-road.—Two Assistant Medical Officers. Salary £104 per annum, with apartments, rations, laundry, and attendance.

BRISTOL ROYAL INFIRMARY.—Resident Casualty Officer for six months. Salary at rate of £50 per annum, with board, apartments, and laundry.

CAMBRIDGE, ADDENBROOKE'S HOSPITAL.—Second House Surgeon. Salary £80 per annum, with board, residence, and laundry.

CANCER HOSPITAL, Fulham-road, S.W.—House Surgeon for six months. Salary £70 per annum.

CARDIFF, KING EDWARD VII.'S HOSPITAL.—House Surgeon for six months. Salary £30, with board, residence, and laundry.

CHELSEA HOSPITAL FOR WOMEN, Fulham-road, S.W. — Clinical Assistants.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with board, apartments, and laundry.

COLCHESTER, ESSEX COUNTY HOSPITAL.—House Physician. Salary £80 per annum, with board, residence, and washing.

COVENTRY AND WARWICKSHIRE HOSPITAL, Coventry.—Junior House Surgeon. Salary £90 per annum, with rooms, board, washing, and attendance.

CROYDON GENERAL HOSPITAL.—Anæsthetist and Junior House Surgeon. Salary £75 per annum, with board, laundry, and residence.

DERBY COUNTY BOROUGH EDUCATION COMMITTEE.—School Medical Officer. Salary £250 per annum.

DERBY, DERBYSHIRE ROYAL INFIRMARY.—Assistant House Surgeon for six months. Salary at rate of £60 per annum, with apartments, board, &c.

DOWN COUNTY COUNCIL TUBERCULOSIS DISPENSARY. — Medical Superintendent. Salary £500 per annum.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—House Surgeon and Assistant House Surgeon. Salary £80 and £55 per annum respectively, with board and washing.

DUNDEE DISTRICT ASYLUM.—Junior Resident Medical Officer. Salary £120 per annum, with board and apartments.

EXETER, ROYAL DEVON AND EXETER HOSPITAL.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, apartments, and washing.

GLOUCESTER, GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, residence, and washing.

GRAVESEND HOSPITAL.—House Surgeon. Salary £100 per annum, with board and residence.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway-road, N.—House Physician for six months. Salary at rate of £40 per annum, with board, lodging, and laundry.

GREAT YARMOUTH HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, lodging, and washing.

HAMPSTEAD, BOROUGH OF.—Medical Officer of Health. Salary £600 per annum.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.—Surgeon to Out-patients. For Camden Town Out-patients' Department: Resident Casualty Officer. Salary £140 per annum, with board, residence, and laundry. Also Assistant Casualty Officer for six months. Salary at rate of £60 per annum, with board, residence, and laundry.

HEREFORD COUNTY AND CITY ASYLUM, Burghill, Hereford.—Two Assistant Medical Officers. Salary £170 and £130 per annum respectively, with board, lodging, washing, &c.

HOLBORN UNION INFIRMARY, Archway-road, Upper Holloway, N.—Second Assistant Medical Officer. Salary £80 per annum, with board, apartments, and washing.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—House Physician for six months. Salary 30 guineas. Also Assistant Resident Medical Officer. Salary £100 per annum, with board and residence.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Physician and House Surgeon, unmarried, both for six months. Salary in each case £30, with board, residence, and washing allowance.

HULL ROYAL INFIRMARY.—Assistant House Surgeon. Salary at rate of £60 per annum for six months, or £80 per annum for twelve months, with board and lodging.

IPSWICH, EAST SUFFOLK HOSPITAL.—Senior House Surgeon. Salary £100 per annum. Also House Physician. Salary £70 per annum. Board, residence, and laundry in each case.

LANCASTER, ROYAL LANCASTER INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with residence, board, attendance, and washing.

LEAMINGTON SPA, WARNEFORD GENERAL HOSPITAL.—House Physician. Salary £85 per annum, with board, residence, and laundry.

LEICESTER ROYAL INFIRMARY.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, apartments, and washing.

LINCOLN MENTAL HOSPITAL, The Lawn, Lincoln.—Assistant Medical Officer, unmarried. Salary £150 per annum, with board, &c.

LIVERPOOL WORKHOUSE HOSPITAL, Brownlow Hill, Liverpool.—Resident Assistant Medical Officer. Salary £100 per annum, with apartments and resident allowances.

LONDON TEMPERANCE HOSPITAL.—Assistant House Surgeon for six months. Salary at rate of £105 per annum.

MANCHESTER CORPORATION.—Female Medical Officer under the Midwives Act, 1902, as Executive Officer. Salary £250 per annum.

MANCHESTER UNIVERSITY.—Junior Demonstrator in Physiology. Salary £100 per annum.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—Assistant House Physician and Assistant House Surgeon for six months. Salary in each case at rate of £40 per annum, with board and washing.

MIDDLESBROUGH, NORTH RIDING INFIRMARY.—Assistant House Surgeon. Salary £75 per annum, with board, residence, and washing.

NATIONAL HOSPITAL FOR THE RELIEF AND CURE OF THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury.—Two Assistant Physicians for Out-patients. Also Registrar. Salary £150 per annum.

NOTTINGHAM GENERAL DISPENSARY.—Assistant Resident Surgeon, unmarried. Salary £160 per annum, with apartments, attendance, light, and fuel.

OLDHAM ROYAL INFIRMARY.—Third House Surgeon for six months. Salary at rate of £80 per annum, with residence, board, and laundry.

PLYMOUTH WORKHOUSE AND INFIRMARY.—Resident Assistant Medical Officer. Salary £200 per annum, with apartments, rations, washing, and attendance.

PAPA WESTRAY, ORKNEY, PARISH COUNCIL.—Medical Officer and Public Vaccinator. Salary £95 per annum.

ROYAL EAR HOSPITAL, Soho.—House Surgeon. Salary £40 per annum.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, London, E.C.—House Physician for six months. Salary at rate of £60 per annum, with board, lodging, and washing. Also Medical Officer for Prevention of Consumption Department. Salary £250 per annum.

ROYAL NAVAL MEDICAL SERVICE.—Fifteen appointments.

ST. BARTHOLOMEW'S HOSPITAL.—Lecturer on Anatomy.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £80 per annum, with board, residence, and laundry.

SALFORD ROYAL HOSPITAL.—Casualty House Surgeon from August 6th to Sept. 30th. Salary at rate of £65 per annum, with board and residence.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone-road, N.W.—Resident House Surgeon. Salary £80 per annum, with board and residence.

SCARBOROUGH HOSPITAL AND DISPENSARY.—Junior House Surgeon for six months. Salary £80 per annum, with residence, board, and allowance for laundry.

SHEFFIELD, JESSOP HOSPITAL FOR WOMEN.—Senior and Assistant House Surgeons, unmarried. Salary £80 and £60 per annum respectively, with board, residence, and laundry.

SHEFFIELD ROYAL HOSPITAL.—Sixth Resident, unmarried. Salary £60 per annum, with board, lodging, and washing.

SHEFFIELD ROYAL INFIRMARY.—Junior Resident Medical Officer. Salary £70 per annum.

STAFFORD, STAFFORDSHIRE GENERAL INFIRMARY.—House Physician. Salary £100 per annum, with board, residence, and laundry. Also House Surgeon. Salary £120 per annum, with board, residence, and laundry.

STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, washing, and residence.

SWANSEA HOSPITAL.—House Physician. Salary £75 per annum, with board, washing and attendance.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Surgeon for six months. Salary £40, with board, lodging, and laundry.

WALSALL AND DISTRICT HOSPITAL.—House Physician and Casualty Officer. Salary £90 per annum, with board, residence, and laundry.

WEST BROMWICH DISTRICT HOSPITAL.—Assistant Resident House Surgeon, unmarried. Salary £75 per annum, with board, residence, and washing.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Surgeon. Also Two Non-resident Casualty Officers for six months. Salary at rate of £50 each per annum and lunch daily.

WESTMINSTER GENERAL DISPENSARY, 9, Gerrard-street, Soho, W.—Resident Medical Officer. Salary £120 per annum, with rooms, gas, coals, and attendance.

WESTMINSTER HOSPITAL, Broad Sanctuary, S.W.—Physician.

WHITEHAVEN AND WEST CUMBERLAND INFIRMARY.—Resident House Surgeon. Salary £120 per annum, with board and lodging.

WOLVERHAMPTON UNION WORKHOUSE AND COTTAGE HOMES.—Assistant Resident Medical Officer, unmarried. Salary £140 per annum, with apartments, rations, &c.

WORCESTER COUNTY AND CITY ASYLUM, Powick.—Junior Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, washing, and attendance

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THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of a vacancy as Certifying Surgeon under the Factory and Workshop Acts at Newnham, in the county of Gloucester.

Births, Marriages, and Deaths.

BIRTHS.

DOTTRIDGE.—On July 4th, at Overton, Godalming, the wife of Cecil A. Dottridge, M.B., of a son.

HARMER.—On July 6th, at 45, Weymouth-street, W., to Mr. and Mrs. Douglas Harmer—a son.

SEARS.—On July 10th, at "Point View," Burnt Ash Hill, Lee, S.E., the wife of C. Newton Sears, M.D., B.S. Lond., M.R.C.S., L.R.C.P., of a son.

THOMPSON.—On June 26th, at Wrexham Lodge, Ealing, the wife of Major F. S. Corbett Thompson, I.M.S., of a son.

MARRIAGES.

CRABB—TANNER.—On July 10th, at Emmanuel Church, Hampstead, by the Rev. Dundas Harford, M.A., assisted by the Rev. P. F. Young, M.A., and the Rev. H. J. Tanner, M.A., Alfred Phillips Crabb, of Regent's Park, N.W., to Florence Isabel Tanner, daughter of John Tanner, M.D., M.A., LL.D., F.L.S., of Claremont House, Hampstead, late of Queen Anne-street, W.

HUTCHINSON—KNOWLES.—On July 2nd, at Huyton Parish Church, Lancelot Hutchinson, M.D., to Doris, only daughter of the late Herbert Knowles, M.D., M.R.C.S., of St. Helens, and of Mrs. Knowles, Huyton.

RENSHAW—TAYLOR.—On July 4th, at St. Paul's Church, Kersal, Manchester, J. A. Knowles Renshaw, M.D., to Amy, elder daughter of Mr. and Mrs. George Taylor, and neice of George H. Charlesworth, Claremont, Kersal.

DEATHS.

MOSSE.—On July 4th, at Oberland, Guernsey, Channel Isles, the Hon. Charles Benjamin Mosse, C.B., C.M.G., late Deputy Surgeon-General A.M.D., aged 82 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

GUI PATIN.

FEW sources of information about notabilities of past times give so illuminating an insight into their characters, ideals, and motives as is revealed in their correspondence when any considerable amount of that remains. Modern estimates of Gui Patin (1602–1672) are based largely upon what has been written by others and upon his not very voluminous writings, which included a few theses, satirical polemics, and some pamphlets of no exalted merit. His letters were published some years after his death, and their publication raised him considerably in the esteem of men of letters and science of the period, but after a while they fell into oblivion and have been much neglected. We are therefore grateful to Dr. Albert N. Blodgett, of Boston, for bringing forward, in a paper published in the *Boston Medical and Surgical Journal* of May 16th, an estimate of Gui Patin and of his life and character as displayed in his letters.

Gui Patin was born, as he himself tells us, in the village of Hodenc, in Picardy, of an ancient race who had inhabited that parish for some 300 years, though naturally many members removed to the larger cities, where they engaged in commerce or law, and in some cases obtained official rank. Gui's father was a lawyer, who after a period of imprisonment by the Leaguers was engaged as his "man of affairs" by the Seigneur of Clermont in Beauvais. There he married Mdlle. Claire Manassier, a descendant of an ancient family of Amiens and the richest lady of the neighbourhood. Gui was intended for a lawyer, and to that end was sent to the college at Boncourt. The nobility whom his father had so faithfully served secured a clerical benefice for him, which, however, he refused with his father's approbation, but much to the regret of his mother. He studied medicine in Paris from 1612 to 1624. In 1629 he married a lady who brought him 20,000 crowns, by whom he had four sons, of whom the eldest, Robert, succeeded his father in 1667 in the chair of Regius professor, or lecturer, of medicine in the Collège de France, which he had occupied since 1654. The second son, Charles, also adopted medicine as his profession, but distinguished himself most by his researches into antiquity and numismatics.

Gui Patin was counted among the first physicians of Paris, and after two nominations as dean of the Medical Faculty was finally elected to that office in 1650, conducting its difficult affairs with great prudence and skill, and pleading in person at the bar, in certain judicial causes in which the Faculty had to defend its rights, with a fervid eloquence that gained him the admiration of the bar. In his correspondence with most of the illustrious savants of Europe of his times he shows himself a distinguished physician and man of letters, erudite, a historian, a close observer of politics in stirring times, an unselfish and high-minded citizen. Dr. Blodgett remarks on his silence respecting nervous and mental disorders, which is the more noticeable because these diseases are closely allied to philosophical research, the study of moral and social conditions, and the influences of civilisation on social economy, in which he was deeply interested. Politically he ranged himself with the Frondists in their opposition to the Prime Minister, Cardinal Mazarin, while religiously he was imbued, though without making any definite avowal, with the spirit of reform that was then spreading over Europe. Dr. Blodgett concludes that the more one reads of Gui Patin the more one becomes convinced of his excellent qualities of heart, his delicacy of sentiment and moderation; and one sees in him one who enjoyed his honours, dignities, and wealth, without defiling them by baseness or servility.

A HOSPITAL AND ITS HONORARY STAFF.

THE following question propounded by a correspondent affords an instance of the misunderstanding which may arise when medical or surgical attendance is given without previous discussion of conditions as to remuneration. The subject of payment may on occasions of emergency not be easy to broach, but in the following instance silence would appear to have given the unintended impression that an operation would be performed as an act of charity. We are asked, "Is a member of the honorary staff of a hospital, supported partly by the rates and partly by voluntary contributions, legally entitled to demand a fee from a patient on whom he has operated in the said hospital?" It is added that the hospital in question is one to which admission is obtained on the recommendation of a county councillor or a subscriber. Some patients are admitted free, and others make a small payment, which here was 3*s.* per week. The operation was performed upon a child at the request of the parents, who have since refused to pay a fee to the surgeon, and who are said to have been informed by a member of the board of the hospital that they need not do so "as the medical staff are our doctors." Our answer to the question asked above must be that the surgeon would be legally entitled to a fee if there was a contract, express or implied, on the part of the parents to pay him one, and if there were no regulation at the hospital against his receiving one. We gather that there was no such express contract, but our correspondent may be in a position to point to facts from which a promise to pay a reasonable fee might fairly be inferred. If he desired to obtain payment in a court of law he would have to satisfy a jury of the existence of this implied promise. Such a promise would readily be deemed to exist in the ordinary case of a surgeon being called in to attend a child patient in the house of parents apparently able to recompense him for his attendance. It might also be inferred in the case of a child taken to a hospital where it was the practice that patients able to pay for surgical attendance should do so, and if there was something to show that the parents were aware of such a practice. Our correspondent, however, says nothing about payment for surgical treatment being asked for at his hospital in suitable cases, and we are inclined to suggest, having regard to the contribution of less than 6*d.* per day made for a child's maintenance and to the other matters mentioned, that the parents, in fact, thought that they were being afforded a surgical operation as charitable aid, in which case no promise to pay could be inferred from their acceptance.

THE WOMEN'S HOLIDAY FUND.

To the Editor of THE LANCET.

SIR,—We ask you to let us once more bring to the notice of your readers the cause of the Women's Holiday Fund, which many of them have generously supported in past years. A new departure has been made in the setting aside of one house exclusively for mothers and infants. The society sends away as few children as possible, feeling that the holiday without them is more beneficial to the mother. There are, however, circumstances under which they must go, and then it is only fair to separate them from those women who have no children with them. The scheme has proved very successful so far, but entails considerable expense. Instead of lodgings being taken for the summer months, which is the usual method, this special house has been rented by the society and placed under the care of a matron, who is a trained nurse, and can watch over the health of the babies, and give many useful lessons to the mothers. To meet this extra expenditure we hope for an increase of contributions from those who are now looking forward to a respite from the fatigues and oppressions of the crowded life of a town, and can sympathise with the hard-worked women of poorer London, whose family ties and constant toil make it difficult for them to obtain even a couple of weeks' rest and distraction so necessary for their health and spirits.

We are, Sir, your obedient servants,

A. F. LONDON, FRANCIS M. WYNDHAM,
J. SCOTT LIDGETT, HELEN A. POWNALL.

76, Denison House, Vauxhall Bridge-road, London, S.W.

"THE LITTLE LESS ..... ."

EVERY cricketer knows that there is more than the difference of one run between 99 and a hundred, and this is especially true in the annual match between Oxford and Cambridge, where sentiment has so large a share. The young batsman who has to come to the rescue of his side when things are going badly unless his temperament be heroically calm or self-confident is one who is to be pitied; to be "99 not out" in such circumstances is magnificent, and to have missed the century is a tragedy which many of us are still young enough to feel. There is nothing absurd in the sympathy which the cricketing world feels for the member of the Oxford Eleven who performed this feat on Monday, and who, as soon as he reached the pavilion, was seen to be acutely ill with fever and a rash. A diagnosis, we are told, was readily made, and to the regret of all the player who had carried out his bat left the ground for the sick-room and took no further part in the match. From a medical point of view it was no doubt as well that the course of the game prevented him from staying longer at the wicket.

DAVOS AS A HEALTH RESORT.

Dr. Bernard Hudson, the British Consul, in his annual report to the Foreign Office, writes:—Davos, from its dryness, absence of wind, altitude, and climatic conditions generally, is probably unique as a health resort; but although the fact is well appreciated by other nationalities, especially Germans and Russians, whose numbers increase year by year, the regrettable fact remains that the numbers of British visitors are yearly decreasing. In 1899 3000 British visited Davos; in 1910, 2513; and in 1911, 2267. This decrease may be put down to the desire to favour home resorts, of which there are now many, or to the erroneous impression prevailing in the United Kingdom that Davos has grown too "towny," and that owing to the numbers of invalids it is not a safe place to come to. It only requires a visit, however, to dispel these ideas. The Queen Alexandra Sanatorium continues its useful work and is a very great boon to the many British subjects suffering from pulmonary tuberculosis, who have been able to take advantage of its treatment. The sanatorium is intended for people of narrow incomes affected with curable forms

of tuberculosis. A work of extension is now being undertaken, whereby a new wing, providing accommodation for 23 more patients, will be added, which will be ready for occupation in November, 1912. The new railway line from Davos to Filisur, which enables the journey to St. Moritz now to be made in a little over two hours, has been found of the greatest use and convenience. A referendum taken last year resulted in the prohibition of the motor-car in the canton of Graubünden being made absolute.

T. B. J.—On the face of it our correspondent is right, but we have not heard the other side. It would be better that both parties should make a statement and submit the matter for arbitration to a senior member of the profession.

R. H.—The different resolutions passed have all appeared in the daily press, and upon many of them we have already commented.

ERRATUM.—In Professor W. J. Simpson's article in our last issue, on the Etiology of Vaccinia, the name of Major R. Mitter, I.M.S., was accidentally substituted for that of Dr. R. Mitter in the first column of page 21.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

WE shall publish this diary from time to time that our readers may have under their hands the dates of the approaching scientific Congresses. It is unnecessary to issue the lists of all these functions week by week, and we propose to make only such gatherings as will occur in the immediate future the subject of regular announcement. The following Congresses, Conferences, and Exhibitions are announced for July, August, and September:—

May to October (London, Earl's Court).—Shakespeare's England.
July 12th-16th (London).—Imperial Conference of Teachers' Associations.
,, 17th-19th (Oxford).—Oxford Ophthalmological Congress.
,, 19th-27th (Liverpool).—British Medical Association, Eightieth Annual Meeting.
,, 24th-30th (University of London).—First International Eugenics Congress.
,, 25th-28th (Berlin).—Royal Institute of Public Health.
,, 26th-31st (Prague).—Sixth International Congress of Radiology and Medical Electrology.
,, 29th-August 3rd (York).—Congress and Exhibition of the Royal Sanitary Institute.
,, 29th—August 3rd (The Hague).—Second International Moral Education Congress.
Aug. 5th-10th (Oxford).—Second International Congress of Entomology.
,, 6th-10th (Düsseldorf).—Third International Medical Congress on Industrial Accidents.
,, 7th-10th (Glasgow University).—Thirty-second Annual Meeting of the British Dental Association.
,, 8th-30th (Central Europe).—Medical Study Tour ("A.P.M."), starting at Besançon.
,, 10th-14th (Edmonton and Calgary, Alberta).—Annual Meeting, Canadian Medical Association.
,, 10th-Sept. 6th (Balkans, Turkey, Greece).—Ninth Annual Congress of the Association Internationale de Perfectionnement Scientifique (A.P.M.).
,, 11th-18th (Cracow).—Eighth Esperanto Congress.
,, 12-17th (Boston, U.S.A.).—Ninth International Otological Congress.
,, 24th-Sept. 9th (Toronto).—Canadian National Exhibition.
Sept. 1st-14th (France).—Voyage d'Etudes Médicales.
,, 2nd-7th (Wrexham).—Welsh National Eisteddfod.
,, 4th (Washington, D.C.) and Sept. 6th-13th (New York).—Eighth International Congress of Applied Chemistry.
,, 4th-11th (Dundee).—British Association.
,, 8th-11th (London, Royal Agricultural Hall).—Dairy Show.
,, 9th (probable opening date) (Geneva).—International Congress of Anthropology and Prehistoric Archeology.
,, 9th-10th (San Sebastian).—Third Spanish Congress of Tuberculosis.
,, 10th-12th (Berlin).—Sixth International Congress of Obstetrics and Gynæcology.
,, 15th-21st (Münster).—Eighty-fourth Meeting of the German Association of Scientists and Medical Practitioners.
,, 23rd-25th (Toulouse).—"Cold" Congress. (Cold Storage and Cryologic Methods.)

The following journals, magazines, &c., have been received.—Bio-Chemical Journal, Canadian Journal of Medicine and Surgery, Journal of Comparative Pathology, Bulletins et Memoires de la Société de Radiologie Médicale de Paris, Archives of the Roentgen Ray, Dublin Journal of Medical Science, Archives de Médecine et de Pharmacie Militaires, Liverpool Medico-Chirurgical Journal, Archives Générales de Médecine, Monthly Cyclopædia, Dominion Medical Monthly, Maryland Medical Journal, New Zealand Medical Journal, Bulletin of the Johns Hopkins Hospital, American Journal of Medical Sciences, St. Paul Medical Journal, Archives of Pediatrics, Proceedings of the Royal Society of Medicine, Archives de Médecine et Pharmacie Navales, Journal of Tropical Medicine and Hygiene, Jahrbuch für Kinderheilkunde.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

THURSDAY.

DERMATOLOGICAL SECTION (Hon. Secretaries—J. H. Sequeira, Wilfrid Fox): at 5 P.M.

Demonstration of Cases:

Dr. G. Pernet: Mycosi Fungoides d'Emblée.
Dr. MacLeod: Specimens of Keloids resulting from Piercing the Ear for Earrings.
Dr. Sequeira: Hæmorrhagic Lupus Erythematosus.
And other Cases.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. H. MacCormack: Clinique (Skin). 5.15 P.M., Lecture:—Dr. F. W. Price: The Diagnosis and Treatment of Mitral Disease.

TUESDAY.—4 P.M., Dr. H. Campbell: Clinique (Medical). 5.15 P.M., Lecture:—Mr. G. G. Turner (Newcastle): Perforation of the Stomach and Duodenum, with Special Reference to the Early Symptoms.

WEDNESDAY.—4 P.M., Mr. R. P. Rowlands: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. W. Carr: The Ways in which Tubercle Bacilli Enter and Spread in the Body.

THURSDAY.—4 P.M., Dr. L. Guthrie: Clinique (Medical) 5.15 P.M. Lecture:—Mr. J. D. Mortimer: Selection of the Anæsthetic.

FRIDAY.—4 P.M., Dr. D. McKenzie: Clinique (Ear, Nose, and Throat).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 10.30 A.M., Surgical Registrar: Demonstrations of Cases in Wards. 12 noon, Dr. Bernstein: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. P. Dunn: Convergent Strabismus.

TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 11 A.M., Mr. Etherington-Smith: Demonstration of Minor Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Pritchard: Clinical Pathology

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations on the Throat, Nose, and Ear. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. Dr. Simson: Diseases of Women. 5 P.M., Lecture: Dr. Beddard: Practical Medicine.

THURSDAY.—10 A.M., Dr. Simson: Gynæcological Demonstration. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn; Diseases of the Eye. 5 P.M., Lecture:—Dr. Bernstein: Clinical Pathology.

FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 12.15 P.M., Lecture:—Dr. Bernstein: Clinical Pathology. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Clinical Lecture:—Dr. Abraham: Cases of Skin Disease.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. Bishop Harman: Diseases of the Eye. 10.30 A.M., Medical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10.30 A.M., Surgical Out-patient (Mr. E. Gillespie). 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. D. Gillies). 3 P.M., Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan).

TUESDAY.—Clinic; 2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. Howell Evans); Gynæcological (Dr. A. E. Giles). 3.30 P.M., Medical In-patient (Dr. A. J. Whiting).

WEDNESDAY.—Clinics:—2 P.M., Throat Operations (Mr. Gillies). 2.30 P.M., Children's Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Mr. W. Steuart); Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan). 5.30 P.M., Eye Operations (Mr. Brooks).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel).

FRIDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. E. Gillespie); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie); Clinical Pathology and Pathological Demonstration (Dr. W. A. Duncan).

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

WEDNESDAY.—4 P.M., Dr. Perkins: Cases of Arrested Pulmonary Tuberculosis.

ANCOATS HOSPITAL, Manchester.

THURSDAY.—4.15 P.M., Dr. E B. Leech: Medical Cases. (Post-Graduate Clinic.)

MANCHESTER ROYAL INFIRMARY.

TUESDAY.—4.30 P.M., Dr. H. Griffith: Cases Illustrating Diseases of the Eye. (Post-Graduate Clinic).

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (15th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.).

TUESDAY (16th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.), Royal National Orthopædic (9.30 A.M. and 4 P.M.).

WEDNESDAY (17th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental (2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (18th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological (2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal National Orthopædic (9 A.M. and 3.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and (2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (19th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.) Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Royal National Orthopædic (3.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M.), Aural, (2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (20th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic (2 P.M.), Hospital operations are performed daily.

EDITORIAL NOTICES.

It is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. I. of 1912, which was completed with the issue of June 29th, were given in THE LANCET of July 6th.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1912 will be ready shortly. Bound in cloth, gilt lettered, price 16*s.*, carriage extra.

Cases for binding the half-year's numbers are now ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.*

To be obtained on application to the Manager, accompanied by remittance.

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WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will insure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world.

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SOLE AGENTS FOR AMERICA—Messrs. WILLIAM WOOD AND CO., 51, Fifth Avenue, New York, U.S.A.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, July 10th, 1912.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
July 4	30·18	N.E.	...	93	67	56	55	58	Overcast
,, 5	30·26	E.	...	98	70	56	57	61	Cloudy
,, 6	30·06	E.	...	115	74	58	60	64	Fine
,, 7	29·95	W.	0·09	113	75	57	59	62	Overcast
,, 8	30·06	S.W.	...	113	71	57	58	63	Cloudy
,, 9	30·13	W.	...	115	74	54	55	61	Fine
,, 10	29·98	S.W.	...	127	78	61	63	67	Cloudy

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